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Lastly, there remain the letters to Lord Feilding, later the Earl of Denbigh, and a rather incompetent Parliamentary General. They are priceless, for they show Harvey in a new character as the discontented British tourist. He is perfectly true to the type. He is detained in quarantine at Treviso, and he is furious with the wooden stupidity of the officials who will not let him through, he is furious at the quarters in which they have housed him, and he is more furious still at their daring so to molest an English gentleman of no small importance.

The chief passages in Harvey's Life are well known. They have been collected by Sir D'Arcy Power, and Sir Thomas Barlow added an account of his University years. I may, however, give you a few which I do not remember to have seen mentioned.

In 1625 the Duke of Buckingham was accused of poisoning King James by a plaster applied to his arm. Harvey was examined before the House of Commons. He had been in attendance during the King's last illness, had been present when the plaster was applied, and did not know what it was made of, but he saw no ill-effects from it. He was one of a committee of this College which, in 1627, reported on some alum works in the parish of St. Botolph and condemned them as a nuisance.

In 1633, on June 23rd, when he was with King Charles for the coronation in Holyrood, he received the freedom of Edinburgh and was made a Guild brother at the banquet given to the King by the city.

In 1641 he went to Aberdeen, and on August 28th received the freedom of that city. This was the year in which Charles tried unsuccessfully to raise a Scotch force against Parliament. It was not, I think, known before that Harvey accompanied him on this occasion, as well as in 1639 and 1640.

In 1644 the King sent the Duke of Richmond and Lennox and the Earl of Southampton as Commissioners to treat for peace at Uxbridge with the Parliament. Harvey went in the suite of the Duke of Richmond and Lennox, with whom he had travelled in France 14 years before, and his friend Edmund Smith went thither also in the suite of the Earl of Southampton.

In November, 1646, he was given a pass from Oxford to Newcastle to attend the King as his physician. But he did not follow the King to Holmby House, nor do we find that he was ever again in attendance. Charles was never out of health, as we know from Sir Thomas Herbert, during the remainder of his life, and no physician was among the few servants who were allowed him.

In 1650 Harvey was given a pass to go to London to attend his old patient, Lady Thynne. She had to guarantee that he would take no steps prejudicial to the Commonwealth, but that was merely the usual precaution observed with anyone who had been with the late King.

David Lloyd, in his Memorials of certain persons who suffered during the Rebellion, published in 1668, states that Harvey was fined £2000 by Parliament.

THE FAMILY.

Harvey's next brother, John, was Sergeant or head of one of the departments in the Household, became on his resignation Receiver of Crown Lands in Lincolnshire, and died in 1645 Member for Sandwich. His executor was the younger Harbottle Grimston, one of the most respected of the Parliamentary party.

The five remaining brothers were all in trade. Two of them, and apparently only two, were in the Grocers' Company. Daniel was elected in 1611, when he was only 24, and was given a loan of £50 out of a benevolent fund founded by the Company to start young members in trade, and Eliab, was elected in 1616. Both held office, and Daniel was elected Sheriff and Warden, but paid the fine to escape service. Foreign trade was then in the hands of chartered companies. The chief exports were cloth, a trade as old as Charlemagne, lead and tin. The oldest was the Merchant Adventurers Company, which had the monopoly of the trade with the North Coast of Europe from the Elbe to the Scheldt. Their books are lost and we cannot therefore tell if the Harveys were in it. But there was a smaller company of Merchant Adventurers trading with France, of which Daniel and Matthew were certainly members.

In 1627 Charles, in one of the vagaries of his senseless foreign policy, confiscated some French ships. The French retaliated by confiscating British goods in France. This led to litigation, and Daniel and Matthew were accused before the Privy Council by their fellow Adventurers of acting in collusion with the French merchants. The matter seems to have dropped as no subsequent proceedings are recorded. The other two great companies were the Levant Company and the East India Company. The Harveys were in both.

It seems to have been a family characteristic to refuse to pay entrance fees. In 1616, Thomas and Daniel, partners and "Farmers of the pre-emption of Tynne," were admitted to the Levant Company. Thomas paid his "fine," as it was called, of £25, and this admitted the firm. Daniel was abroad. But when Thomas died in 1623, aged 38, Daniel, by the rules of the Company, became liable for a fine. Nothing would induce him to pay it, and the Company did not get it out of him till December, 1625. Eliab and Michael did not join till 1637, when the fine was £50. They also refused to pay, and haggled for months with the Company until they obtained an abatement. They repeated the process in the East India Company. Daniel was already a member in 1624. Eliab, Michael, and Matthew were elected in 1628. "The fine was left to their discretion though it was considered that they could not give less than £10 to the poor-box." They not only could, but did. At the next meeting "they took the accustomed oath, the court expecting from them some reasonable fine in that respect, but they presenting to the Court but £6, which, howbeit, they refused not, yet they wished that Daniel Harvey would acquaint his brothers that the Court expected they would have enlarged themselves in a more bountiful manner, for the favour conferred upon them is not usually permitted to any under £20 a man."

In 1633 there is a delicious bit of sharp practice by Daniel. When a ship came home the members bid for the cargo, and the payment was due some months later. The usual rate of interest was then 7 per cent., and Daniel moved that the Treasurer should be ordered to receive such moneys as he should bring in upon discount for pepper at 8 per cent., on the grounds that it was much better for the Company to

receive its own money at 8 per cent. than to borrow outside at 7 per cent. The Treasurer, however, took a different view and threatened to resign. It is not surprising to find that the Company supported him.

Clarendon, in his "Life," states that Daniel had the reputation of knowing more about trade than any man in England, and that Archbishop Laud, when he was made Commissioner of the Treasury in 1636 on the death of Weston, consulted him frequently. They were near neighbours, as the Archbishop had a house at Croydon and Daniel lived at Combe near by.

There is further evidence on the reluctance of the Harveys to part with money. When the Civil War broke out both Parliament and the King found themselves in great straits for money. Both, at first, raised it by voluntary contributions and the King never had much from any other source. Parliament, very early, began to exact contributions and their first essay was by the methods in vogue in former reigns. The levy of one-twentieth was ordered on all goods and movables. Under this Daniel Harvey was assessed in Dowgate ward. In April, 1643, he was ordered to pay £1500, but in November this was raised to £5000. The money was extracted from him with great difficulty. In May, 1644, he was imprisoned at Lambeth House. In August they threatened to deport him to Plymouth. By Dec. 20th he had paid £3000. In February, 1645, he is ordered to pay £500 more within a fortnight, and in July he was brought up before the Commissioners to answer objections against him. In 1650 he died, and in 1652 Eliab, his executor, made an affidavit that he had paid £4000, whereas his rightful share was only £1360, and his estate was thereupon credited with £3000 on the Public Faith—corresponding to our funds. Eliab was assessed at £2500. He absconded for a time. His goods at Roehampton were distrained but were bought up by his brother-in-law, Colonel Francis West, afterwards Lieutenant of the Tower for Parliament. Eventually he was brought up in custody and forced to pay up. The brothers were not alone. Many citizens behaved, and were dealt with, in the same way. Later, Parliament raised money by assessment on counties, also an old method, and great difficulty was always experienced in collecting it. The continual arrears in pay were what gave the Army its power, as it refused to be disbanded unless payment was made and no money was available for the purpose.

But the Harveys did not confine their operations to pepper and currants. In later life they dealt largely in land. Land was then easy to buy. All the royal lands, all the episcopal lands, and all the cathedral lands were up for sale. Parliament also dealt very hardly with the Royalists and only admitted them to composition for their property under heavy fines. A man with a rent roll of £1000 was usually fined £2000. As he had already spent all he had, and melted his plate for the king, and as there were then no other ways of investing money than in land, he could not pay his fine without selling some of his property. To sharp business men like the Harveys it was a great opportunity. They evidently acted together, for the brother who becomes the owner is often not the ostensible purchaser.

By the end of the first generation, therefore, the Harveys, including William, had become large landowners. Matthew, who died in 1642, owned land in Kent and Surrey, Michael's sons had a Dorsetshire estate worth £21,000, Daniel had Combe and property in the Midlands and elsewhere, and left his widow £1200 a year besides, and Eliab had Roehampton and Chigwell and a house in Broad-street, besides other properties, and left also £1500 a year to his widow.

Only two of the branches lasted long. William, John, and Matthew had no children. The Michael branch died out in 1712. Thomas's only son, known as John Harvey of Antwerp, I have been unable to trace.

Young Daniel married into the Montagu family which took a leading part in bringing back Charles II. He obtained with his wife Combe Neville, an estate adjoining Richmond Park, was a member of the Convention Parliament of 1660 which voted the Restoration, was knighted by Charles the first day he landed, along with young Eliab, his cousin, and obtained a grant of arms which, up to that time, the family did not possess. He was a courtier, was made Ranger of Richmond Park, was a friend of the notorious Castlemaines, and died as Ambassador at Constantinople in 1672. His son Edward, of Combe Neville, was a Jacobite and wasted his fortune. In 1750 Edward's surviving son sold the property. Daniel's sisters married well. Elizabeth married Heneage Finch, an honest man and an excellent lawyer, who became Lord Chancellor and Earl of Nottingham. Mary married Sir Edward Dering, of Surrenden Dering, and Sarah married an Irish peer, Lord Bulkley.

Young Eliab remained in business, and in 1672 was proposed, though not elected, for Governor of the Levant Company. He had a great house in Broad-street which just escaped the Great Fire, and was made keeper of the King's game in Epping Forest, where one of his properties, Chigwell, was.

He was succeeded by a long line of Williams and Eliabs, who were country gentlemen and M.P.'s—in the Parliament of 1678 there were no less than four members of the family—with occasional soldiers. The last of the line was a distinguished sailor, Sir Eliab, who, when a midshipman, nearly lost the property at the gaming table, commanded the *Temeraire* at Trafalgar, and in 1809 was cashiered for insulting his admiral, Lord Gambier, who had promoted Cochrane over his head. He was restored, however, the following year and died in 1830, G.C.B. and Admiral of the Blue. He left no son and, through one of his daughters, Rolls Park at Chigwell descended to the late Sir Francis Lloyd, whose widow still lives there.

The Times—School and University.

Let us now consider some of the conditions of Harvey's own life. He was brought up at the Cathedral School of Canterbury, one of the best in the country. At that date Latin was the universal language. It was the language of learned men, the language of diplomacy and of travel. Every bachelor of divinity had to preach in Latin, the young barristers used it in their moots in the Inns of Court, the accounts of the Royal household and even some of the merchants' accounts were kept in it. Accordingly it was the aim of every good school to make its boys not only able to read, but able to speak Latin, and in the statutes of Canterbury dated 1541 it is ordered that the boys, whether at work or play, should speak nothing but Latin and Greek, but Greek was rarely taught in schools. You may remember that Montaigne, who lived about that time, was not allowed to speak any language but Latin until he was six. Greek was brought into the schools by the Calvinists who returned to England on the accession of Elizabeth. For them Greek and Hebrew were the two sacred languages, and for the study of the Bible Greek became common in the schools and even Hebrew was sometimes taught.

We may therefore confidently suppose that Harvey went to Cambridge able not only to read, but also to speak Latin after a fashion, and with some knowledge of Greek. The old free University had given place to a system of Colleges and Halls founded to train priests by pious benefactors, of whom the greatest, though not the first, was my own founder, William of Wykeham. The life was hard and the teaching narrow. Into these ecclesiastical seminaries the classic revival of the fifteenth century in Italy, patronised by Humphrey, Duke of Gloucester, and other great men, brought a fresh inspiration. At Oxford, Linacre and Grocyn were as good Grecians as any in Europe. Wolsey and Fox and Henry VIII. all encouraged and endowed Classical studies. But the Classics,

and especially Greek, were attacked for their Paganism both by the old religion and the new. In Oxford, Greek soon fell into contempt. At Cambridge, under Cheke and Smith, it held better. By Harvey's time it was re-established. Spenser, who went up in 1570, was a Platonist, and Harvey was devoted to Aristotle.

But meanwhile the universities had fallen on evil times. The Church had been plundered by the Crown and also by its own patrons, both lay and ecclesiastic. Spenser, in Mother Hubberd's Tale, describes the lay patron bargaining with an unfortunate clergyman, before he would present him to a £40 living, that he should resign half the income to the squire's son. The case of Wokingham was reported to the Long Parliament. It was in the gift of Salisbury. The Dean and Chapter had leased the rectory and tithes to a layman, there was no vicarage, and the parishioners had, for many years, to pay a preacher out of their own pockets. The upper clergy were Pluralists. One man might hold several benefices. The lower clergy were accordingly half starved, and as a natural consequence were grossly ignorant, careless of their duties, and sometimes drunken and corrupt. Scandalous benefices beget scandalous ministers. It was this state of things that gave the Calvinist attack such strength. The Church fell as much by its own faults as by the virtues of the Calvinists.

The absence of decent prospects in the ministry led to a great falling off in the number of students. Added to this the destruction of the monasteries had deprived the universities of the large numbers of scholars whom they sent up with exhibitions. In the middle of the sixteenth century the numbers had fallen to a few hundreds, nearly all the halls were closed, and the colleges were half empty. Further, the ecclesiastical character of the universities laid them open to interference by the Head of the Church, now the Monarch. By voting for the divorce they had placated Henry VIII. But under Edward VI. all the heads and professors who sympathised with the old religion were expelled. Under Mary the process was renewed in the opposite direction. Eleven heads were expelled in Cambridge alone. Under Elizabeth the Act of Supremacy was enforced, with a similar expulsion of all Romanists, and the universities became violently Calvinist.

In 1573 the Vice-Chancellor of Cambridge and two other leading Dons broke into Caius College and destroyed all the decorations with which Caius, who was a High Churchman, if not a Papist, had beautified the Chapel. In 1595 Whitgift, the Archbishop of Canterbury, and a synod of bishops drew up the Lambeth Articles, of which the following are specimens:—

1. God, from all Eternity, hath predestined certain men unto life; certain men He hath reprobated.
2. The moving cause of Predestination unto Life is not Faith or Good Works or "anything that is in the person predestinated," but only the Goodwill and Pleasure of God.
3. There is predetermined a certain number of the Predestinate, which can neither be augmented nor diminished.
4. Those who are not predestinated to salvation shall be necessarily damned for their sins.

* * * *

7. Saving Grace is not given . . . . to all men by which they may be saved if they will.
8. No man can come unto Christ unless the Father shall draw him; and all men are not drawn by the Father.
9. It is not in the will or power of everyone to be saved.

This cheerful view of the future was, however, too much for Elizabeth. She sent for her little black husband, as she called Whitgift, and, after giving him what, in those days, was called a rattling, told him to withdraw the Articles altogether, which he had to do. James, who loathed the Scotch Calvinists, threw all his weight on the same side. In 1611 Laud, who, in spite of the violent opposition of the two Abbots, George the Archbishop and Robert, Master of Balliol, had led a growing High Church party in Oxford, was elected President of St. John's, and by 1622 Oxford had become anti-Calvinist. Cambridge followed suit, though considerably later.

Meanwhile, however, a great change had taken place in the material circumstances of the universities. Elizabeth, who loved to air her accomplishments, began the system of Royal visits to the universities with all their solemn puerilities, which was continued by James and Charles. She made the universities fashionable. Donations were made by her courtiers, and the numbers rose, at the end of her reign, to 2500 at Oxford and nearly as many at Cambridge. Venn says that 1590 to 1640 was the zenith of the universities until quite recent times. The result was not an unmixed blessing. The rich youth who now flocked in brought with them the manners of the Court, and for many years the Statute books are full of decrees against extravagance in dress, drunkenness, gambling, insubordination, and such unseemly sports as football. An undergraduate twice convicted was to be whipped. Simmons D'Ewes could find no fit associates in 1618 but a few Dons.

All this had, however, little effect upon the poorer students. Their life continued as hard and scanty as it was before. Harvey went to Caius with a Matthew Parker scholarship. The capital endowment of it was £61 13*s.* 4*d.* Elizabeth, in 1559, made an injunction that all clergy whose benefices were worth £100 or more should, for every £100 of their income, contribute £3 6*s.* 8*d.* as an exhibition for a scholar at the universities. Under James existing professorships received additional revenue, among which the Chair of Physic at Oxford was augmented by the Mastership of Ewelme Hospital, and fresh chairs were set up in Mathematics, in Natural and in Moral Philosophy, and in Anatomy. All these at Oxford. Similar improvements, no doubt, took place at Cambridge.

During the Rebellion both Universities were at first Royalist, for Cambridge was preparing to send its plate when it was prevented by Cromwell, but Scarborough was expelled from Caius for his loyalty, and the University had by this time been overpowered by the Parliament. Oxford was loyalist throughout, and after the King's death refused to take the oath prescribed by Parliament, for which it was punished by a visitation under Philip, Earl of Montgomery and Pembroke, the Chancellor who succeeded Hertford. On his death in 1650 Cromwell became Chancellor, and under his tolerant rule Oxford had comparative rest.

Of Harvey's feeling to Cambridge we know nothing. He is not known to have returned there after taking his degree, though, as he was at Newmarket in 1636 attending the young Elector, it is possible he was present at some ceremony.

The Sciences: Medicine.

To understand the England of Harvey we must imagine a society to which science was unknown. To us the growth of knowledge by observation and experiment is a common-place. Every morning we read the discussions of some scientific conference or are informed of a new discovery. In Harvey's time the few sciences that existed were little removed from magic, and the great majority, including all the biological sciences from botany to sociology, did not exist at all. Alone in the great mind of Bacon had the real meaning of science been grasped, and the immensity of its future conceived. Men still ascribed the action of the brain and liver to spirits, and the causes of disease to disordered humours. Not only had they not yet comprehended that such operations could be examined by physical methods, but they resented as heresy little less than criminal all attempts to correct the mistakes and supplement the deficiencies of great predecessors such as Galen, which would have been welcomed by no one more warmly than by Galen himself.

Chaucer does not give a very good character to his Doctour of Physicke.

> "In all the world ne was ther non him lyk
> To speak of physik and of surgerye
> For he was grounded in astronomye,"

and therefore could tell his patients' prospects by the stars.

> "He knew the cause of every maladye
> Were it of cold or hete or moist or drye
> And where they engendrid, and of what humour;
> He was a very parfight practisour."

Then he describes his understanding with his apothecaries.

> "For eche of hem made other for to wynne
> Here friendship was not newe to beginne."

Then he describes a list of the old authors that he knew, and goes on to describe his rich dress.

> "And yit he was not esy in dispence,
> He kepte that he won in pestilence,
> For gold in phisik is a cordial
> Therefore he lovede gold in special."

Bacon, in his "Advancement of Learning," published in 1604, the year that Harvey took his degree, describes with great shrewdness the difficulties of medical practice, and sums up:—

> "So then the subject being so variable hath made the art by consequence more conjectural, and the art being conjectural hath made so much the more place to be left for imposture.
>
> "And therefore I cannot much blame physicians that they use commonly to intend some other art or practice which they fancy more than their profession. For you shall have of them antiquaries, poets, humanists, statesmen, merchants, divines, and in every of these better seen than in their profession; and no doubt upon this ground, that they find mediocrity and excellence in their art maketh no difference in profit or reputation towards their fortunes.
>
> "Medicine is a science which hath been, as we said, more professed than laboured, and yet more laboured than advanced."

and the reasons that he gives are "the discontinuance of the ancient and serious diligence of Hippocrates" in taking notes of cases, the neglect of morbid anatomy, and the absence of exact inquiry into the effect of drugs.

In Bacon's own lifetime two men, Mayerne and Harvey, partly, we may think, owing to Bacon's criticism, and partly, no doubt, because they shared in the scientific spirit that was just beginning to awake, worked exactly as Bacon advised. We have Mayerne's clinical and post mortem notes in his own beautiful handwriting here in the Library. Harvey's, to which he himself alludes, are unfortunately lost, but he had them in 1648 when the letters to Riolan were published, and it is possible they may yet be found. They revived the old Hippocratic tradition, and they were followed, after the Restoration, by Willis, Lower, Glisson, and Sydenham.

It is difficult to judge exactly what Harvey's position was in the general estimation. He attended Bacon himself, and also his successor, Lord Keeper Williams, Bishop of Lincoln, and the latter's biographer, Bishop Hacket, tells how "that great secretary of nature, Dr. William Harvey," saved William's life in what seems to have been a dangerous attack of enteric in 1624. We know the names of other patients, Sir Thomas Thynne and Sir Thomas Sandys, from certificates that he gives of their unfitness to travel. He also attended the Lord Treasurer Weston who was laid up with an attack of the stone at York during Charles' expedition to Scotland in 1633. He says he lost practice by publishing the De Motu, but he must have regained it when he was made Physician to the Household. He practised medicine, surgery, and, it seems by his notes in the De Generatione, diseases of women especially.

The title of Medicus Regius, meaning Physician to either James or Charles or their Queens, was held by no less than 16 men besides Harvey. Five of them were knighted, which Harvey was not. Sir Matthew Lister was Physician to Henrietta Maria, and when she was confined at Exeter in 1644, he and Mayerne went down to see her. But the great man of the time was Sir Theodore Turquet de Mayerne. In 1644, the Queen, writing to him, signs herself "votre bien bonne maitresse et amie," and Charles writes "Mayerne, Pour l'amour de Dieu, allez trouver ma femme."

On May 19th, 1645, he was paid the greatest compliment that Parliament has ever, I suppose, paid to a medical man. The Lords sent down a message to the Commons:—

> "The Lords desire that the House of Commons would join with them in expressing their esteem of a man whose extraordinary abilities would make him welcome in any part of Christendom; and as he is singular for his knowledge in his profession, so he may be singular in being by the favour of the House exempted from all payments which others are subject unto: it being but a continuation of that favour which he hath enjoyed for about 30 years without interruption."

The House of Commons agreed by 69 to 66.

Other Sciences.

The other sciences in Harvey's time were as little advanced as medicine. Chemistry was first studied seriously by Robert Boyle at the end of Harvey's life; physics had produced in 1600 the book of Gilbert, President of the College that year, on the Lodestone, a work of the first class of which parts are still standard. Napier had in 1614 invented logarithms. But the science which advanced most rapidly in Harvey's life was astronomy. Galileo was lecturing in Padua when he was there, Kepler died in 1630, and in 1637 a poor Lancashire clergyman named Horrocks with borrowed lenses observed for the first time the transit of Venus. It has been questioned whether Harvey attended Galileo's lectures. As Galileo drew enormous audiences it is almost certain that he did, but if so they seem to have made but small impression for his references to astronomy are merely to disparage its methods in comparison with the direct observation of anatomy.

There was, however, a good deal of amateur experiment and invention. Prince Rupert dabbled in chemistry, the Marquis of Worcester had set up at Raglan Castle hydraulic machinery which frightened the Parliamentary Commissioners out of their wits, and Petty patented his first invention in 1647. There was also a small group of men who sought relief from the troubles of the times in the study of natural philosophy. They met in London up to 1648 and latterly at Gresham College, which Hobbes says had absorbed the natural sciences from the universities, but as in that year it was used as a barracks they transferred their meetings to Oxford. Harvey was at Oxford when they met in London, and when they met at Oxford he had already left it. He never therefore formed one of the group, which was the nucleus of the Royal Society. Even so it is rather curious that Sprat's "History of the Royal Society" (published in 1667) makes no mention of Harvey as a precursor.

In striking contrast to the infantile condition of science was the maturity of art and literature.

The Arts.

In Harvey's time there was a great enthusiasm for painting and sculpture. Charles is said to have had the finest collection of pictures in Europe. Arundel was second only to the King. Denbigh also collected But they were not alone. Buckingham and many others were collectors, and it was not confined to court circles. Colonel Hutchinson was a good judge and Mrs. Cromwell had a collection of portraits. There was no native school, though Dobson painted good portraits, but the seventeenth century was the age of the Dutch, Flemish, and Spanish schools, and collectors can seldom have had such chances. Vandyck lived for several years at different times in England and Rubens was sent over as ambassador.

Harvey was undoubtedly interested in painting, for Arundel gave him a commission to buy for the King in Italy, and when he escaped from quarantine he travelled to Florence and Rome under the guidance of Mr. Petty, a clergyman who collected in Italy and the Near East for Arundel. By his introductions he was very courteously treated by the Grand Duke of Tuscany, who was a scientific man, and by Cardinal

Barberini at Rome, but he was an amateur at buying and failed to get anything of value.

Another art that was universally cultivated then was music. From 1590 to 1640 English music was at its zenith. The Puritans stopped ecclesiastical music, but rather because it was favoured by the bishops than that they themselves objected to it. There was a good deal of destruction of organs and church instruments at the hands of the soldiers. But it was not widespread, and the Puritans themselves sang psalms. Secular music was never thought wrong by anyone, and it is quite untrue to say that the Puritans set their faces against it. Bunyan, Milton, Cromwell, and Colonel Hutchinson were all devoted to music, and Colonel Hutchinson to dancing also, yet no one was a stricter Puritan than he. Cromwell was the first man who provided a Court Concert as an entertainment for his friends. His Ambassador to Sweden, Whitelock, took musicians with him, and was himself a performer. In fact in those days it was a regular part of a gentleman's education, whatever his religion or his politics. One of the best composers of song music was Henry Lawes, to whom Milton writes an Ode, and he, in 1655, published a collection of Ayres, dedicated to Lady Dering, who composed three of the pieces in it. This is Daniel Harvey's daughter. Mrs. Hutchinson also composed. In the ten years 1650 to 1659 there are 34 publications of musical works.

But of course nothing equals in significance the fact that Harvey's life was practically conterminous with what we term Elizabethan literature, the greatest outburst of literary genius that the world has ever seen. The first three books of the "Faerie Queene" were published when Harvey was 11 years old, and Herrick's "Hesperides" in 1648, when he was 70, and between those dates lie all the greatest names in English literature.

I have wondered whether, in their early married life, Dr. and Mrs. Harvey took a boat across to Bankside, where Shakespeare's plays were being given at the Globe up to 1613. I have wondered, too, what Harvey thought of the "Religio Medici" which was circulating in MS. in 1636 and what he would have said to Browne if they had met. We know Browne's opinion of the "De Motu." In recommending it to his son Edward and another doctor called Power, he speaks of it as a greater discovery than that of Columbus.

Harvey quotes Virgil and Terence, but he gives no sign that he had ever read or heard of the great writers of his own day. But a writer on scientific subjects can hardly be expected to quote contemporary poetry. Tennyson's "In Memoriam" shows that Tennyson had read Darwin, but I do not remember that Darwin quotes Tennyson. It does not seem a habit of great men of science to quote poetry. We need not, therefore, suppose that Harvey's silence means that he was without knowledge of the wonderful art around him; on the contrary, we know that he mixed with men who held it in the highest honour. Charles kept a Shakespeare in his bedroom. But in the first half of the seventeenth century the interest of most men was turned not to literature, nor to painting, nor to science, but to two subjects, which of all others are the most inimical to the cultivation of science or of art, politics and religion.

Politics.

The chief social change in the sixteenth century was the rise in wealth and influence of the upper middle class, including the squires in the country and the merchants in the towns. Both were of the same stock, for younger sons went into trade, and merchants who succeeded bought land. Some families combined both. The Barnardistons were an old Suffolk family in 1600, and are there still. The head of the family in Charles's reign, Sir Nathaniel, was Governor of the Levant Company and a prominent Member of the Long Parliament. The squires profited by the ruin, in the Wars of the Roses, of the old nobility whose estates they bought, and also by grants and cheap leases of the Abbey lands under Henry VIII.; both they and the merchants, by the great increase of the cloth trade which began under Edward IV., increased under Henry VII., and continued with fluctuations throughout the century. It led to a great demand for sheep pasture, and this in turn to a fourfold rise in rents, as related by Latimer, and to a large reduction of arable land to pasture, as described in the Utopia. But this again threw so many labourers out of work that Elizabeth was obliged to pass a new poor-law to save them from starvation. The House of Commons was practically filled by the squires, the merchants, and the lawyers who sprang from both.

The Tudors, the ablest and the only native dynasty we have ever had, knew the House of Commons thoroughly, and except in matters of religion, managed them with great tact. But Elizabeth, with all her prestige and popularity, so clearly recognised their reluctance to grant money that she practised the most sordid parsimony, suffered her great public servants to die in poverty, and poisoned the soldiers and sailors who saved England with bad victuals sooner than ask for supplies.

James, coming as a foreigner from a country where the middle classes had no power, and ignorant of our great political struggles in past centuries, was as entirely unable to recognise the position of the Commons as he was personally incapable of dealing with them. His silly profusion brought him rapidly to poverty, and he presented the ironic spectacle of a King blustering about his sovereign power and in the same breath begging for money to pay his tradesmen. No wonder that the Commons lost their loyalty to the Crown. In 1621 James tore out of the Commons' Journals the dignified declaration in which they stated their rights and liberties, and in 1625 he died at the end of the negotiations for the Spanish match, an enterprise begun with the usual Stuart disregard of the national feeling, pursued with the usual Stuart duplicity, and ending in the usual Stuart ill-success.

For Charles there was less excuse. He had taken a prominent part in politics for some years before his accession and had abundant opportunity to learn. But if a man cannot learn by experience, wherewithal can he be instructed? He was, in his first years, dominated by his evil genius, Buckingham, and though the Commons undoubtedly treated him very badly at that time, yet surely no man could have treated them with less tact than Charles. A Venetian wrote of him: "This King is so framed by Constitution that he can never oblige any man by word or deed." When he finally decided to govern without Parliament, his arbitrary measures, if not against the letter of the law—and it must be remembered that he had the warrant of most of his judges for what he did—were so completely against the spirit both of the Constitution and of the Petition of Right, which he had recently signed, that he irretrievably alienated both Parliament and the country.

Moreover, both parties, the King and the Commons, were equally justified in distrusting each other. If the Commons had good cause to distrust Charles, and they certainly had, Charles had equally good grounds to distrust them. Faction ran high; what was voted on Monday was rescinded on Tuesday, and at the end the majority who wished to continue negotiations were expelled from the House by the Minority and the Army.

In my young days small boys were occasionally puzzled by the question "What happens when an irresistible force comes against an immovable post?" It not inaptly represents the positions of the Parliament and the King.

Religion.

But the desire for political liberty had small influence compared to the violence of religious fanaticism. Religious grievances were invariably placed first in all the transactions of the House of

Commons. Henry VIII., to gratify his own passions, had led the nation to revolt from the Pope. But beyond a change of supremacy the religious practice of England was, for many years, little altered. Gradually, however, and more rapidly after the Marian persecution, Calvinism spread over the whole of England and Scotland. The City of London and the universities were its chief strongholds.

It is difficult for us to understand its appeal. Probably few Fellows of the College have laboured under the conviction of original sin and the certainty of damnation which clouded Cromwell's early manhood, or have experienced the assurance of saving grace which was his comfort and support in later life. But we can imagine how men, accustomed to the lax religion of the time, administered by an ignorant and careless clergy, for such they were, must have been affected by the greatest Revival that has ever taken place, to which Wesley and the Salvation Army are but ripples on a pond to a storm in the ocean, and what, to men living under the formalism of Rome, must have seemed the splendour of Calvin's great announcement that the creature could commune with the Creator, that the individual soul could approach the Divinity, that there was no barrier between God and man. Men's minds are naturally fascinated by horrors. Gloomy creeds have created the fiercest enthusiasm, and the Independents, the logical sons of Calvin, though he would have been the first to disown them, formed the most remarkable army that England has ever raised.

But if we find it hard to understand the acceptance of Calvinism, still harder is it to comprehend a society in which toleration was not only not approved, but was even abhorred as treachery to God. The Puritans were mocked as saints, but they spoke of themselves by the same term, and it was not always undeserved. Some of them were as truly saints as any that religion ever had. But even such men hated their opponents with a violence we can hardly believe, and had no thought of allowing them any kind of toleration. Calvinist, Arminian, Anglican, Independent and Papist, each was convinced that his own opinion was the true, and each was determined that it should be enforced on every man, woman, and child in the country.

Posterity has undoubtedly approved the political aims of the Long Parliament and looks upon it rightly as the preserver of English liberty. We are, therefore, the more astonished to observe the complete dearth of constructive political ability which marks their ranks. They pulled down everything; they built nothing. The Calvinists destroyed the Church, the Independents destroyed the Commons, the Lords and the Monarchy, and they themselves, when they turned out the Rump and set up the Protectorate, were attacked by the Republicans and Fifth Monarchy men, who plotted the assassination of Cromwell.

Compare what Cromwell, honestly anxious to restore good Government, could do for England in the years of his power, with the complete system of administration, religious, educational, judicial, municipal and financial, which Napoleon established between 1800 and 1811; or if you like a modern instance, with the system of government established in Italy since the war. It may be that when Mussolini dies the edifice will fall, but see what force and what creative imagination he has displayed.

The Government under the Commonwealth is, in England, a long series of failures, and in Ireland one of the greatest political crimes on record. Charles lost his cause, luckily for us. But in the personal struggle he was the victor. He had more foresight than any of them. He always believed that the rebellion would break down and the monarchy be restored, if not in his time, then in his son's. Accordingly he resisted to the utmost, and by so doing forced his foes into such violent and illegal courses as completely lost them the sympathy of the nation. After his execution they never dared to summon a freely elected Parliament, they were driven to acts of great and greater despotism, and when the strong hand of Cromwell was removed, they perished by their own dissensions and by the universal detestation that their tyranny had evoked.

But if posterity has approved the political aims of the Long Parliament, it has condemned their religious purposes no less emphatically. The views which Laud held about the Anglican Church are those now held by its members, the clergy now are as Laud would have had them, and the services are such as Laud wished and would have aroused Elliot to fury. But these are small matters.

The great vice of the age was its intolerance, and the religious mania, for we can call it nothing else, which overran England between 1560 and 1660 like an epidemic, did not even, like bodily epidemics, leave a population behind it immune to its particular poison. Never was religious hatred more bitter than after the Restoration, and in its graver forms it persisted for over a century and a half. Catholic emancipation was not carried till 1829, Oxford and Cambridge were not thrown open till 1871, and mutual respect and goodwill between the Free and the Established Churches is a growth of the last 30 or 40 years.

It has been claimed that the Puritans preserved the family life of England from the corruption and the licentiousness of Court manners. Such statements assume, on the one hand, that the Court society of the day was something exceptional, and on the other that the manners of the capital were the manners of the country. Neither is true. The fashionable London society of that day, as of this, was composed of people in affluent circumstances, occupied chiefly with their own pleasures and their own selfish interests, with leisure and without, for the most part, serious occupation. Can you suppose that such a society could exist, have you ever known such a society to exist either in London or any other capital against which the accusation of vice and folly could not be brought? There was nothing exceptionally wicked in society then. There were some scandals—the Somerset and the Purbeck stories, for instance, there were drunkards and profligates, there were family quarrels—when Lady Hatton asked James to dinner he suggested it might be a good occasion to make up her quarrel with her second husband, Sir Edward Coke; she said if her husband came in at one door she would go out at the other. But in all these points was society then very different from the present, and could we not from the law reports parallel every one of them over and over again at the present day?

Charles himself was too uxorious, and at a time when old Lady Arundel and young Lady Derby, when the elder Lady Verney, whom her husband always called "Good Puss," and the younger Lady Verney, whom the whole family nicknamed "Mischief," when Mrs. Hutchinson and Lady Wandesford and Lady Fanshawe, and, above all, Dorothy Osborne, were alive, and when the stage was trodden by those exquisite types of English girlhood, whom we could match to-day, Portia, Rosalind, and Celia, Beatrice, Imogen, and Miranda—do you think that there can have been much amiss with the position of women?

It is said too that to the Puritans we owe that sturdiness which has kept and increased the liberty they won. Neither is this to be accepted. Lived there no brave men before Agamemnon? Did not the men of that day expressly proclaim themselves followers in their fathers' footsteps, guardians of what they had obtained by peril of their lives? The temper of a great nation is a thing too firmly set to change under every blast of new doctrine, and its history is the consequence of its character, not the cause of it.

The Puritans were the guardians of spiritual fervour at a season when religion had become cold and dead. Such seasons of decay occur from time to time, and the Puritans are neither the first nor the last of the Revivalists. Whenever need arises such men have a great part cast for them on the world's theatre, and none of us should criticise them

so harshly as to refuse them their due praise. But we owe to them the loss of half the beauty of England. They destroyed the drama, they sold the finest collection of pictures in Europe, and even ordered the religious pictures to be burnt as superstitious, there is not a village church which does not bear the marks of their barbarous hands, and three several times it was proposed in Parliament to pull down the Cathedrals and sell the materials for what they would fetch.

But, after all, our interest is not to praise or blame the actors in this great tragedy. It is to consider what was Harvey's attitude to the great struggles, political and religious, that were taking place around him. And of this we obtain from himself no evidence whatever. He mentions the King and Queen two or three times in the "De Generatione," but without any word either of affection or regret, which indeed in 1651 it might not have been prudent to print. He mentions Parliament once, complaining that the mob had destroyed his collections, though he was attending the King with the permission, and even at the command, of Parliament. There remains only the message that he is said to have sent to Scarborough, who was an ardent royalist, "Leave thy gunning and come here and I will bring thee into practice." But that may be significant.

We may well believe that he would not approve either the folly and tyranny of Charles or the violence and malice of his foes. To Harvey the war must have seemed a vast catastrophe, for which both parties were alike responsible, from which little good was gained, and by which the progress of knowledge was irreparably hindered.

And for religion. No man of serious character then doubted the fundamental beliefs of Christianity, and Harvey was of a reverent mind. But we cannot fancy his sympathising either with Laud's formal discipline or with the brutal irreverence of the Puritans. Harvey's religious feelings, we may be sure, were too sincere and too deeply felt ever to be published to the world.

Addison once asked Garth of what religion he was. Garth replied, "Wise men all hold the same religion." "What is that?" said Addison, and Garth answered, "Wise men never tell."

A STUDY OF THE EFFECT OF RADIANT HEAT ON THE PRODUCTION OF ACTINIC ERYTHEMA.

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AN investigation into the effect of radiant heat on the production of actinic erythema was started in May, 1928, and was carried out at first in the actino-therapeutic department of the Royal Free Hospital and later, when laboratory conditions became essential, in the physics department of the London School of Medicine for Women.

The possible interaction of shorter and longer wave-lengths is of some practical and clinical importance. Infra-red radiations constitute a large proportion of the energy given out by all sources of ultra-violet light, the association of radiant heat with mercury-vapour light treatment has been advocated and incandescent filaments are used as resistance units in some types of mercury-vapour lamps. Moreover, it may be presumed that clinical differences in the therapeutic value of mercury-vapour and carbon arc lamps depend partly on different percentages of the various wave-lengths in these sources of ultra-violet energy.

No attempt has been made in this preliminary investigation to estimate the therapeutic value of combining long and short wave radiation. The effect of the rays on the production of actinic erythema was alone investigated. It was hoped that a study of the skin reaction might give some indication which would prove to be of clinical value.

The following references to the more important contributions on the subject indicate the divergent opinions held by various observers. Thedering,[1] in 1916, stated that, in the treatment of one patient, red and infra-red light immediately after an erythema dose of ultra-violet light diminished the intensity and duration of the cutaneous reaction. Benoit,[2] in 1923 and 1926, stated that the addition of infra-red to ultra-violet light diminishes the cutaneous reaction. Infra-red preceding ultra-violet irradiation will increase the reaction, and following it will produce a local clearing of the erythema. Peemoller[3] quotes a case where erythema was obtained after three minutes exposure to mercury-vapour light and radiant heat, and after four minutes to mercury vapour alone. He considers that all hyperæmia-producing skin irritation is capable of increasing the action of the erythema-producing ultra-violet rays. Stahl and Simsch[4] state that skin hyperæmia caused by the heat of a summer's day increases erythema and pigmentation; friction of the skin after a cold bath has the same result. Anæmia of the skin produced by a short cold bath decreases erythema and increases pigmentation. The same action is produced by a cool wind. This view is commonly found in German publications, where the reinforcing action of infra-red rays is generally taken for granted. Pech[5] insists on the antagonistic action of infra-red and ultra-violet radiation. He states that the addition of infra-red rays to ultra-violet light will necessitate a longer exposure for the production of an actinic erythema. Dufestel[6] considers that in practical actinotherapy the weak antagonistic action of infra-red rays can be neglected. Radiant heat in small doses increases the reaction, whereas radiant heat in larger doses, given for an hour to an hour and a half after mercury-vapour irradiation, decreases the reaction. Hill and Eidinow,[7] using a mercury-vapour lamp, obtained an erythema after ten minutes irradiation at ordinary room temperatures; this was intensified if the exposure was made in a hot room and reduced to almost nothing if made in a cold room at freezing temperature. They consider that cold retards, but cannot stop, the biological action of ultra-violet rays.

Fuller lists of references can be found in A. C. Guillaume's "Les Radiations Lumineuses," Paris, 1927, and Dufestel's "Ultra-violets et chaleur radiante," but the above quotations may suffice to show how various are the views of different observers.

We consider that experiments with the data and precautions mentioned below are necessary for obtaining reliable results.

Experimental Details.

The aim of our experiments was to ascertain whether the addition of "radiant heat" rays had any appreciable effect, either synergic or antagonistic, on the production of actinic erythema, and whether, if any such effect be noted, it can be attributed to some "physiological" action or "physical" cause.

The lamps used as sources of ultra-violet radiation were: a Finsen-Reyn carbon arc (15–18 A, 70–80 V) lamp, a vertical carbon arc (15–18 A, 55–60 V), a smaller vertical carbon arc (7 A, 35–40 V), a Kromayer mercury-vapour lamp (3 A type), and a mercury-vapour lamp of the Hanovia type, without reflector (2 A, 145 V). For convenience in the text we use the term "ultra-violet" light for the radiation given out by these lamps, recognising that visible and infra-red rays are also present.

The source of "infra-red" or "heat" or "long-wave" radiation used was the resistance element from a "bowl-type" electric heater at red heat. The radiation given out

is mainly in the infra-red region (maximum energy in the third octave of the infra-red, about 36,000 A.U.).

The filters used were two cells, 1 and 4 cm. deep respectively, with flat quartz faces. Through these cells fresh distilled water circulated; water absorbs rays beyond the first octave of the infra-red, thus cutting off a great portion of the longer rays.

We considered it necessary to make exposures on a part of the body not usually exposed to light—the thigh or abdomen—and each reaction was tested against a control, made on a corresponding symmetrical area of skin on the other side of the body. Re-exposure of the same areas during later experiments was carefully avoided.

Statements comparing erythema are usually based on the differences observed on the following day—i.e., about 24 hours after exposure. From previous clinical observations the impression had already been gained that two erythemas of varying depth may, after 24 hours, be indistinguishable; that the rate of fading of symmetrical parts does not always run a parallel course, and that the illumination (natural or artificial) in which the erythema is viewed plays a rôle in the appreciation of its intensity. Other accidental factors, such as baths, friction from clothes, and warming or cooling also make the comparison of fading erythemas difficult, as the effect on two observed parts is not always identical. Hence frequent observations during the first few hours were considered essential. It is also desirable when comparing the relative intensity of two reactions to observe them when they are at their maximum. With the depths of erythema obtained, pigment formation was not sufficiently marked to be used for purposes of comparison and is therefore not recorded, though it was observed in some cases. Differences in colour of the pigment of the heated and non-heated areas were noticed, the latter being greyer and less brown.

We have recorded experiments made on medical students and ourselves, noting the latent period (time elapsing before the appearance of visible erythema), rate of increase of erythema, maximum reaction (colour and depth), duration and rate of fading. Rigid clamped screens of asbestos, with diaphragms for exposure of the skin, were employed. Two screens separated by about 1 cm. of air were used, as a single screen was liable to conduct heat through to the skin. It is of great importance to keep the distances constant, in view of the rapid falling-off of light intensity with distance. Care was taken that the light should fall normally on the skin and that there should be no undue pressure from the screen.

Constancy of Response to Equal Irradiation of Symmetrical Areas of Skin.

1. Six experiments (12 exposures) were made on six subjects by exposing corresponding areas for three minutes to a mercury-vapour lamp (2 A, 145 V), 22 in. distant; the light was filtered through a distilled water screen.

2. Six similar experiments (12 exposures) were made with an addition of infra-red radiation to the filtered mercury-vapour light. (The source of infra-red radiation was placed at an angle between the skin and the quartz cell, which was fixed in an asbestos screen.) Identical depths of erythema were obtained in corresponding couples of exposures in each of the 12 experiments, though minor differences in the rate of fading were noticed.

We wish to emphasise the necessity and reliability, as shown by these experiments, of this method of observation—i.e., of using corresponding areas on the two sides of the body.

Effect of Varying Exposures on the Depth of Erythema.

A series of six experiments on five subjects was made to determine what percentage increase of exposure will produce a perceptible difference in the depth of erythema. Exposures to a mercury-vapour lamp (1·75 A, 150 V) at 23 in., for 5, 4, 3, and 2 minutes respectively were given. The latent periods increased with decreasing exposures—e.g., in one experiment from 2 to 3½ hours, in another from 4½ to 9½ hours. The erythemas observed showed that at least 20 to 30 per cent. increase of exposure is necessary to produce a perceptible difference of erythema, and that a careful observation of the latent periods under identical conditions of exposure is a more accurate indicator of the length of exposure than the observation of the depth of actinic erythema.

Experiments with Mercury-vapour Light to which Infra-red Rays are Added.

1. A preliminary series of ten separate experiments on five subjects was made, using a Kromayer lamp as source of filtered ultra-violet light, and the radiator described above as a source of infra-red rays. Small corresponding areas were exposed to the ultra-violet radiation, and to the ultra-violet and infra-red radiation respectively, the distances and exposures being kept constant in any one experiment. With distances from the lamp of from 10½ to 12 in., exposures of from three to five minutes, and heating to the limit of toleration (radiator 6–8 in. distant) the actinic erythema was diminished by the addition of the infra-red radiation in all the experiments, and (where a conclusion could be drawn) the latent period was definitely delayed on the side exposed to infra-red rays. The maximum difference was found in an experiment in which the latent periods were five hours and eight and a half hours respectively, while in two cases faint erythemas, with latent periods of six and seven hours respectively on the one side, were suppressed on the side exposed to infra-red rays.

2. Five experiments were made in which the tissues on one side were cooled by a draught of cold air (driven by an electric motor) during irradiation with the Kromayer lamp. The other side received a similar irradiation with the addition of infra-red radiation in two experiments, and a hot air draught in two other experiments, while in the fifth experiment the Kromayer light only was used. The erythemas were greater and the latent times less on the cooled side in four cases, while in the one case (cf. hot *v.* cold draught) no detectable differences were seen.

3. In the two series of six experiments each, devised to investigate the constancy of response of symmetrical areas, it was noticed that in the experiments in which filtered mercury-vapour light alone was used bigger reactions were obtained with shorter latent periods than in the experiments in which infra-red radiation was added to the filtered mercury-vapour light. The exposures in all 12 observations were three minutes and the distance from the lamp 22 in., so that the results were comparable.

4. Six experiments were made using a mercury-vapour lamp of the Hanovia type (without a reflector) and a water filter (depth 4 cm.), and on one side adding infra-red radiation. The addition of heat diminished the erythema in three cases, while no detectable differences were observed in three cases. In four cases the latent periods were increased, while in the other two cases they were approximately equal.

A summary of the experiments is given below.

Series.	No. of expts.	Erythema.		Latent periods.	
		Diminished by heat.	Visually equal.	Increased.	Decreased.
1.	10	10	0	6	0
2.	5	4	1	4	0
3.	6	3	3	6	0
4.	6	3	3	4	0
Total ..	27	20	7	20	0

In no case was the erythema increased by the addition of infra-red rays, and the visually equal erythemas are neutral evidence, since quite considerable differences of exposure are necessary to give visual differences in the depth of the erythema. The latent periods observed varied from about one to ten hours in different experiments; in no case were these diminished by the radiant heat. A difference of colour was always noted between two areas, one of which had been heated by the addition of infra-red rays or by conduction. The addition of heat causes a scarlet or vermilion erythema as compared with the more crimson or carmine colour of the usual mercury-vapour erythema. The same differences in colour were observed when comparing the actinic erythema following carbon arc light irradiation with that following irradiation with the same light filtered through water.

Experiments with Water-filtered Carbon Arc Light.

In this series a carbon arc was used because of the large amount of heat which it emits. Any small fluctuations of light intensity due to the flickering of the arc are immaterial when the two areas are irradiated simultaneously. Comparative observations of the erythema produced by the unfiltered and filtered rays were made in three ways.

1. Exposures to the Finsen-Reyn lamp through the quartz applicator empty, and subsequently through the quartz applicator filled with distilled water. Four experiments (one subject) were made. On account of the fluctuations of light intensity, experiments of this type are of little value and the experimental results were variable and contradictory.

2. Exposures of a larger area of skin, part of which only was covered with the quartz cell filled with distilled water. Three experiments were made, but they are of doubtful value, for the diminution of erythema observed is probably due, as was shown by photography, to a diminution of light after passage through the cell. Two similar experiments using a mercury-vapour arc gave similar actinic and photographic results.

Experiments of this type are quoted by some investigators as proving that an increased erythema is produced by screening through water. In our observations the screened side gave consistently smaller reactions. These experiments differ from those described in the other sections in that the control area does not receive the same, but a larger dose of ultra-violet light. Some of the loss of light was thought to be due to reflection at the surface of the cell.

3. Exposures through a circular quartz container, half filled with distilled water, so that the lower half only of the exposed skin received filtered light. Fourteen experiments on two subjects were made. Here again difficulties were encountered, sometimes due to the formation of water vapour in the upper part of the cell, a difficulty which was overcome by adjusting a stream of distilled water through the lower half of the cell from a Marriotte's bottle. Increased erythema in the lower half of the field was obtained in 5 of the 14 experiments; the other 9 showed equality. The lower field was noticed to be more brightly illuminated; the matter was investigated photographically by substituting a piece of Seltona P.O.P. paper for the skin, and exposing it to the radiation. Total reflection at the surface of the water actually increased the illumination in the lower half.

We have described this method carefully because erroneous conclusions have been based on experiments of this apparently accurate type. We wish to emphasise the difficulties inherent in the use of filters and to compare the inconclusive results obtained in the experiments described in this section with those in which heat is added during, before, or after the exposures to ultra-violet light.

P.O.P. paper was found to be a convenient method for comparing varying amounts of radiation from any one given U.V. lamp. From 5 per cent. to 10 per cent. (according to the depth of colour) increase of exposure to a given source of light is detectable—i.e., the paper is about four times more sensitive to variations in length of exposure than actinic erythema. Screening the paper with glass (absorption to 3300 A.U.) almost completely prevents darkening of the paper with the same lengths of exposure. The paper provides, therefore, a simple and sufficiently accurate method of examining the filters used in experiments of this type. Examination with a Beck ultra-violet spectroscope was a further check on the filters.

Effect of Heat following or preceding Irradiation with a Mercury-vapour Lamp.

These experiments were undertaken to determine whether heat, either in the form of "long-wave" radiation or from a hot water bottle applied to the skin, affects the erythema produced by the unscreened light of a mercury-vapour lamp, when the heat (1) follows, (2) precedes the ultra-violet radiation.

Sixteen experiments were performed on five subjects, placed 23 in. from the lamp. The current and voltage in any particular experiment were kept constant. The exposures given were three or four minutes, these being sufficient to give actinic erythemas in two to five hours, lasting from one to several days. Immediately before or immediately after irradiation the skin was heated from five to ten minutes by radiant heat or by a large corked test-tube of hot water, until a good diffuse primary erythema was obtained lasting half an hour or longer.

1. *Heat following irradiation.*—Eight separate experiments on three subjects were made; in four the skin was heated by means of the radiator and in four by means of the hot water test-tube. In six cases heat diminished the reaction; in one case heated by the radiator and in one case heated by the hot water no perceptible differences in the depths of erythema were seen. The usual differences in colour were observed. The latent periods were always increased. The duration of erythema was definitely shortened in five cases.

It was noticed that the part previously irradiated with mercury-vapour light was found to be very sensitive to heat. A painful sensation as compared with ordinary "warming" was experienced over this area when the tissues were warmed by either method.

2. *Heat preceding irradiation.*—Eight experiments on four subjects, in five of which the skin was heated by the radiator and in three of which the hot water bottle was employed, gave increased reaction on the heated side in six cases, while in two cases the reactions were apparently equal in depth. The usual differences of colour were noticed. There was slight delay (about 10 mins.) in three cases, otherwise the latent periods were not appreciably altered.

We conclude that when heat precedes irradiation there is a slight increase in actinic erythema. This effect is opposite and less than the diminished erythema which is obtained when heat either follows the irradiation or is applied simultaneously with the irradiation.

Conclusions.

1. Heating tissues by radiation or by conduction (radiator, hot water in vessel) after exposure to ultra-violet radiation diminishes—or suppresses—the actinic erythema and delays its appearance.

2. Heating of tissues by radiation of conduction before exposure to ultra-violet radiation increases the actinic erythema. The time of appearance of the actinic erythema is not appreciably influenced.

3. Heat (radiant heat or hot air draught) applied simultaneously with ultra-violet irradiation diminishes—or suppresses—the actinic erythema and delays its appearance.

4. Differences in colour as well as differences in depth of reaction are noticeable. The actinic erythema of the heated skin is more scarlet or vermilion (similar in colour to the primary erythema), as compared with the actinic erythema produced by the mercury-vapour or water-filtered carbon arc light, which is more crimson or carmine.

5. Differences of 20 to 30 per cent. of exposure to ultra-violet light are necessary to produce visual differences in the erythema. Smaller percentage differences of exposure to a given source of radiation will give appreciable differences in the latent period—i.e., the time elapsing before the appearance of erythema.

6. The diminution of actinic erythema by heating the tissues, either with radiant heat or by conduction, during ultra-violet irradiation, suggests a "physiological" rather than a "physical" cause for the diminution observed. The fact that at least equally satisfactory diminution of erythema can be obtained by heating after irradiation with ultra-violet light cannot be explained by physical interference or antagonism of the rays.

The observed action of ultra-violet light on the sensitiveness of the skin to thermal stimulation appears to be immediate and requires further investigation. It is suggested tentatively that this action may be a factor in determining the degree of actinic erythema in cases heated simultaneously or after ultra-violet irradiation.

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(*References at foot of next page*).

OBSERVATIONS ON VACCINATION.*

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ALTHOUGH the method of prophylactic immunisation against small-pox has undergone no fundamental change since Jenner's time, certain modifications and improvements have been made in it. Arm-to-arm vaccination has been abandoned for obvious reasons. Vaccine lymph is now produced in large quantities and under carefully controlled conditions. The calf is the animal most generally employed for this purpose, but since the virus of cow-pox tends to behave irregularly after prolonged passage in this animal, passage through other animals, such as the rabbit, has become necessary from time to time to rejuvenate the virus. Again, when fresh seed lymphs are required one now has recourse to cases of small-pox. The virus of small-pox, when established either directly in calves or after preliminary passage through monkeys or rabbits, acquires the characters of cow-pox; in fact, the two viruses are immunologically identical, and differ only in their species adaptation.

The Jennerian method of vaccination has always had its opponents. These have steadily increased in number, and it is claimed by the antivaccinators that this method of preventive inoculation is attended not infrequently by untoward consequences. These claims have been very largely discounted by the medical profession, and rightly so. Opposition has come almost entirely from those ill-qualified to pronounce on the matter, and it has been felt that the claims were the outcome of too free a use of that faulty line of reasoning, *post hoc ergo propter hoc*.

Encephalitis.

Of late years, however, a complication of vaccination has made its appearance which, though of rare occurrence, is disquieting because of its high rate of mortality. I refer, of course, to post-vaccinal encephalitis. The onset is abrupt, some 9 to 12 days after vaccination, with headache, vomiting, and drowsiness. The patient usually passes into coma, and the other signs present vary with the portion of the central nervous system involved. About half the cases end fatally; those that recover do so completely without residual symptoms. This form of encephalomyelitis closely resembles those cases which occur rarely in the course of acute infectious diseases, such as measles, small-pox, chicken-pox, and mumps, and this resemblance extends to the essential histological lesion which has been shown to be a perivascular demyelination.

Post-vaccinal encephalitis was first recognised in 1912, when a case occurred at the London Hospital. It reappeared in 1922 when, again at the London Hospital, four cases were recognised and submitted to a detailed investigation. Between 1922 and 1927, 93 cases have occurred in this country, representing an incidence of 1 in 48,823 persons vaccinated; 62, or 66·6 per cent., of these cases occurred in patients between the ages of 5 and 14 years. Apparently the unvaccinated infant and persons submitting to revaccination are not susceptible. This statement requires some slight qualification since Turnbull has described one case in an infant under three months. However, this appears to be the only case of the kind on record, and one may therefore conclude that the susceptible individual is the one submitting to primary vaccination at any age after infancy, but more particularly between the ages of 5 and 14 years. In this connexion the figures for post-vaccinal encephalitis in Holland are of interest. In that country primary vaccination has been very largely practised at school age, and for the period 1922–27, 123 cases occurred out of 495,431 vaccinated, or 1 in 4028. This gives us a clearer conception of the risk attendant on primary vaccination in those other than infants.

The ætiology of post-vaccinal encephalitis remains obscure. There are three hypotheses current. The condition may be due to the vaccinia virus; infection with the vaccinia virus may light up a dormant neurotropic virus which the patient was harbouring; or, as has been most recently claimed, the condition may be a toxic one. The last conception seems to me difficult to accept. Occasional cases of post-vaccinal encephalomyelitis have taken the form of a transverse myelitis without other involvement of the central nervous system, and these cases are not readily explained on a toxic basis. The probability is, therefore, that we are dealing with a condition produced either directly by the vaccinia virus or indirectly through the activation of an unknown latent virus by the vaccinia virus. Whichever of the two views may be correct, it appears to me necessary for the vaccinia virus to invade the body generally, and the central nervous system in particular, for post-vaccinal encephalitis to occur.

The Practitioner and Vaccination.

The question of practical importance is: What is to be the attitude of the medical practitioner towards vaccination? There are those whose reply is: Continue vaccinating as before. It is inconceivable to my mind that any one should adopt such an attitude. Were we dealing with protection against the risk of virulent small-pox there might be some excuse for this attitude. Even so, it would be a confession of ineptitude on our part. But the type of small-pox in this country at the present time is extremely mild and rarely fatal, so that to continue vaccinating as before would be to ask the individual to submit to a prophylactic measure whose risk of death equalled that of the disease against which he was being protected.

Obviously something must be done.

Diluted Lymph.

It is clear from animal experiments with vaccinia virus that the degree of invasion varies directly with the dose inoculated. It occurred to me therefore that the risk of encephalitis should be lessened if a smaller inoculum were used, and during the last three years diluted calf lymph has been in use at the London Hospital, though only in the last six months has it been used at all excessively. The dilutions have varied from 10- to 50-fold, the diluent employed being an M/50 phosphate solution, pH 7·6, though saline or sterile water could be used. The diluted lymph is used within 24, or at most 48 hours, after dilution, and it has been the practice to vaccinate in two places, using a crucial incision of ¾ inch diameter. The Vaccination Committee of the Ministry of Health obviously had the same idea, for they recommended one insertion of the undiluted lymph by means of a ½ inch linear incision in place of the usual cross hatching.

It is not claimed that the use of diluted lymph is the solution of the problem with which we are faced. It is, however, reasonable to suppose that it considerably reduces the risk of post-vaccinal encephalitis. It certainly gives much more satisfactory takes, and

* Being a paper delivered at the London Hospital Post-graduate Course on Oct. 16th.

DR. SHATTOCK AND M. WALLER: REFERENCES.

(Continued from previous page.)

1. Thedering, F.: Das Quarzlicht und seine Anwendung, Oldenburg, 1916.
2. Benoit, C.: Rev. d'Actinother., 1926, ii., 100; Compt. rend. de l'Acad. de Sci., 1923, clxxvii., 787.
3. Peemoller, F.: Strahlentherapie, 1925, xx., 879.
4. Stahl, R., and Simsch, G.: Lichtbiologie u. Lichtther. (Vortr. Gesell. Licht. f. 1927), Berlin, 1928, p. 177.
5. Pech, J-L.: Compt. rend. de l'Acad. de Sci., 1920, clxx., 1247.
6. Dufestel, L-G.: Ultraviolets et chaleur radiante, Paris, 1928, p. 110.
7. Hill, L., and Eidinow, A.: Sunshine and Open Air (L. Hill), London, 1925, p. 67.

out of some 700 patients so vaccinated no excessive reactions have been observed. The number of primary vaccinations at a susceptible age has been very small, so that, of course, it is impossible to draw any conclusions as to efficacy of this method as a means of avoiding post-vaccinal encephalitis. However, no such cases have occurred. The ideal to be aimed at is a perfectly safe method of immunisation against small-pox, and it is our hope that such a method will be evolved. It has been shown that if the virus of foot-and-mouth disease is inactivated by means of formalin in low concentration it still retains its antigenic properties, and this method has been employed in the preparation of vaccines for distemper and yellow fever. Work is in progress here to find out whether some such method could not be applied to the vaccinia virus.

These experiments, which are being carried out by my colleague, Dr. J. Bland, are as yet in their infancy, and it is impossible to say what the outcome of them will be. In the meantime, however, I would make the following suggestions: (1) When vaccinating infants, or performing revaccination, use lymph diluted 1 in 10, making one or two insertions with a crucial incision (*no cross hatching*), or vaccinate as the Ministry of Health have recommended, making one insertion with a single linear incision, using undiluted lymph. (2) When called upon to perform primary vaccination in any person other than an infant, find out first of all if it is absolutely necessary to vaccinate. The only condition rendering vaccination necessary in such a case would be the risk of exposure to *virulent* small-pox. If you *have* to vaccinate a susceptible individual, then do so with lymph diluted 1 in 50, making one insertion with crucial incision.

THE MEDICO-LEGAL SIGNIFICANCE OF BLOOD GROUPS.

By Dr. F. SCHIFF,

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THE establishment of paternity by application of the rules governing the inheritance of the blood groups is now receiving a great deal of attention. The results obtained with this method were recently reviewed in a leading article in THE LANCET (1928, ii., 711). I propose to make some observations on this article.

What does the Blood Test Establish?

A case of doubtful paternity may be chosen in order to demonstrate the application of the method. Here the blood groups of the mother and the child would be established as well as that of the alleged father (possibly those of several men). The results obtained are then considered as to whether or not they are consistent with the rules governing the transmission of blood groups from parents to offspring as established by von Dungern and Hirszfeld (1911) and by Bernstein (1924). According to whether this conformity has been established or not the answer would be: (1) the man examined may be the father; (2) the man examined cannot be the father.

It is evident that the "blood test," far from being a method for diagnosing paternity, is, in certain cases, capable of merely excluding an alleged paternity. The method should, therefore, correctly be called "a test for the exclusion of paternity." The exclusion, of course, of a man who had been denounced unjustly can be established in one out of six or seven cases only.[1] This is due to the small number of blood groups existing. It often happens that a man who is not the father belongs to the same group as the actual father; in addition, there is a high incidence of cases showing such a disposition of the blood groups of mother and child as to preclude a priori any inference being drawn from the blood group of the father.

In the leading article above the position in Germany was referred to in detail; in that country the "blood test" has been systematically applied in forensic medicine since 1924.[2] It is very difficult for the outsider, and especially for the foreigner, to judge the position in Germany, owing to complicating juridical factors. It is understandable, therefore, if some misinterpretations have crept into the article in THE LANCET which I shall now try to correct.

Certain Misinterpretations.

The leading article in THE LANCET contains the following statement: "It has been laid down in Prussia that 'the impossibility of fatherhood cannot be legally regarded as being established absolutely (einwandfrei) by a blood examination.'" This quotation, it is true, reproduces the opinion of some judges, including one member of the Supreme Prussian Court of Appeal, but it does in no way represent a decree ruling out the acceptance of the results of the blood test as the basis of a verdict in the court. The sentence quoted represents only the individual opinion of a minority of jurists. Judge Leonhard is not the President of the Prussian Court of Appeal, as would be assumed according to the article in THE LANCET. He is President merely of one out of some 30 departments of this court, and his opinion has been contradicted not only by other departments of this court but also by numerous leading members of the bar and of the medical profession.[3] Leonhard [4] himself recently admitted that those who accept the blood test as a reliable means of evidence represent the dominant trend of opinion. Official decrees have been published in various States of the Reich[5] directing the attention of the courts to the new method of evidence and pointing out explicitly that it is capable, in suitable cases, of proving the impossibility of fatherhood. These decrees regulate at the same time the details of the procedure of a more administrative nature. Numerous verdicts of supreme courts of appeal have been published which have been based on the results of the blood examination.[6]

The leading article in THE LANCET contains the following quotation from an official statement made by the Supreme Medical Council of Austria: "In the majority of cases the results of blood examinations will not assist in the establishment of paternity." German lawyers and medical men, too, interpreted this statement, but mistakenly, as a criticism of the reliability of the method. To the expert, however, it appears simply as a banality, indicating the well-known fact mentioned above, that the method is capable of affording a useful result in a minority of cases only. The decisive point, however, is, what is the attitude adopted by the courts in those cases in which the constellation of blood groups contradicts the possibility of fatherhood? In THE LANCET paper it is assumed, but not correctly, that no provision whatever has been made with regard to these cases. The promulgation referred to, published in the Official *Gazette* of the Austrian Administration of Justice, Nov. 8th, 1927,[7] stated explicitly: "According to the various blood groups established in an individual case the result obtained is capable of proving the impossibility of fatherhood for a given man." In accordance with this decree in Austria numerous verdicts have been based exclusively or for the greater part on the evidence afforded by blood grouping. A number of these verdicts, including such passed by the Vienna Supreme Court of Justice, have been published as long ago as in 1927.[8]

Exact data showing the extent and scope of the blood test in Germany have become available through an inquiry made by the writer on behalf of a committee formed by the Reichsgesundheitsamt (see *Medizinische Welt*, August 24th, 1929). The fact was revealed, surprising even for those acquainted with German conditions, that more than 5000 medico-legal examinations of this kind have already been

performed. It is true this total number covers a period of some five years; the vast majority of examinations, however, has been performed in the course of the last two or three years. At the end of 1926 I was able to collect information about 88 cases only. Due allowance being made for the probable incompleteness of the latter figure, still there is no doubt that the true total of cases dealt with up to that date could not have been more than some hundreds only. The rapid spread of the application of the method resulted from an extensive discussion which took place at the meeting of the German Society of Forensic Medicine, September, 1926.[9]

This material offers some information as to the efficiency of the method attainable in practice. Out of a total of 5500 law-suits (including some cases from outside Germany) the exclusion of paternity was decided upon in 8 per cent. of the cases. Taking into account that theoretically not more than 16 to 18 per cent. can be obtained, provided that in no instance an actual father is amongst those examined, then it may be stated that in those law-suits in which the blood test has been applied, roughly every second man had been denounced unjustly.

Application in the German Courts.

The method is applied as follows in the practice of German courts.

1. *Civil Suits.*—(*a*) Suits for maintenance of children born out of wedlock (by far the most frequent application): (1) an alleged father is trying to prove that his fatherhood is out of the question; (2) the illegitimate child or his legal representative wishes to exclude a second or third man, who also had had relations with the mother, in order to urge the remaining man to perform his duty of maintenance.

(*b*) *Suits for Divorce* (Eheprozesse): (1) it is moved by a husband or by the child itself that a legitimate child shall be declared to be an illegitimate one; (2) the illegitimacy of a child shall be proved in order to establish the fact of alleged adultery.[10]

2. *Criminal Processes.*—(*a*) In cases of alleged violation or incest it is claimed by the mother that she had had relations with the accused man only. If his paternity is excluded by the blood test then the falsity of the accusation is proved and the defendant is acquitted. (Several impressive cases of this kind have occurred.)

(*b*) In civil processes false evidence is often given and sworn, for instance, by a mother, who, according to German law, in a law-suit of her child's, does not appear as one of the parties, but as witness. Such false witness has in several instances been disclosed by the blood test, the false witnesses consequently being punished and judgments previously wrongly passed being revised.[11]

The Committee of Experts recently convened by the Reichsgesundheitsamt, and including the leading representatives of forensic medicine, serology, and the science of inheritance, unanimously expressed the opinion that the examination of the blood groups, when performed by an expert, "is a reliable method which may be used advantageously for forensic purposes, *especially for the exclusion of paternity.*"

Bernstein's formula of inheritance is generally accepted as the principle underlying the method. According to this formula the rules governing the inheritance of blood groups, as originally discovered by von Dungern and Hirszfeld, may be amplified in so far as the fatherhood of a man with the group AB in relation to a child O can be excluded as well as the fatherhood of a man O in relation to a child AB. Bernstein's theory was given additional support by the results of my inquiry already referred to. Amongst 5242 couples of mother and child, examined with especial carefulness, there was found in no instance a combination deviating from Bernstein's rule. It may safely be assumed that what is valid in relation to mother and child is equally valid in relation to father and child. Observations on the relationship between mother and child are of special significance, since in this case errors are almost entirely excluded.

In view of the importance already gained by this method the endeavour is made to ensure officially the reliability of the examination. Only a few especially competent experts shall be entitled to perform the examination. In Berlin, Frankfurt, and Nürnberg there are special medico-legal experts sworn in for the performance of examinations of blood groups only. In some States (Bavaria, Saxony, Würtemberg) the examinations have been centralised in one single or in a few institutes only—e.g., university institutes of forensic medicine.

As far as the serological technique is concerned [12] the principle has been accepted years ago that the diagnosis should be made on the ground of a cross-examination—i.e., the examination of the red cells and of the blood-serum each separately. In babies in which the formation of agglutinins is not yet accomplished, a repetition of the test is performed some months later. The examinations are made in several parallel series with various samples of test sera and test erythrocytes respectively. In addition to the human serum of group B as usually used for diagnosing the antigenic factor A serum from rabbits immunised with sheep red cells have also proved valuable owing to their high titre and resistance.[13] Official directions concerning all details of the examination are now in process of preparation: further, it is intended to submit all commercial test sera to Government control.

Conclusion.

The blood test is in use on a large scale in Germany and elsewhere, especially in the Scandinavian countries. O. Thomsen, Copenhagen,[14] has reported 50 cases examined for the courts, in Norway some commencement has been made, and in Sweden E. Wolff, professor of forensic chemistry in the University of Stockholm, has already performed more than 160 official examinations. A departmental opinion was passed at the University of Lund (Forssmann, Sjövall, Essen-Möller) expressing itself very strongly in favour of an extensive application of the method, and there, too, provision has been made to entrust only well-trained serologists with the performance of the examination.

References.

1. Schiff, F.: Aerztl. Sachverständigenzeitung, 1924, No. 24; 1927, No. 4; 1929, No. 11; Hooker, S. B.: Jour. Immunology, 1929, xvi., 551.
2. Schiff: Jur. Wochenschrift, 1925, p. 343; Dt. Zeitschr. f. d. ges. gerichtl. Medizin, 1926, p. 360; Goroncy: Zentralbl. f. Jugendrecht und Jugendwohlfahrt, 1926, p. 54.
3. Sachs, H.: Deutsche Juristenzeitung, 1929, p. 545; von Scheurlen: Münch. med. Wochenschrift, 1929, p. 847; Caro: Jur. Wochenschrift, 1929, No. 31; Genzmer: Deutsche Juristenzeitung, 1929, p. 619; Hellwig: Jurist. Rundschau, 1929, p. 168.
4. Leonhard: Jur. Wochenschrift, 1929, No. 31.
5. Bayrische Staatszeitung und bayrischer Staatsanzeiger, Nov. 19th, 1926; Amtsblatt des Württembergischen Justizministeriums, Dec. 31st, 1926; Justizministerialblatt für den Freistaat Sachsen, July 19th, 1928; Verfügung des Mecklenburg-Schwerinschen Justizministeriums vom 21.6.1928. The first three publications are reprinted in F. Schiff's Technik der Blutgruppenuntersuchung, 2nd edit., Berlin, J. Springer, 1929.
6. Soergel: Kommentar z. Bürgerl. Gesetzbuch, 1929, § 1717, Note 1b; Rundbriefe des Archivs Deutscher Berufsvormünder, 1926–1929. For other references see Caro.[3]
7. Reprinted, Schiff.[5]
8. Festschrift der Oesterreichischen Richterzeitung, 1927, Spruchbeilage (containing 17 verdicts passed by the Supreme Court of Justice); Werkgartner, Juristische Wochenschrift, 1928, p. 867.
9. Deutsche Zeitschrift für die gesamte Gerichtliche Medizin, 1927, ix., 66, 369.
10. Höchstrichterliche Rechtsprechung, 1929, No. 710.
11. von Scheurlen: Reichsgesundheitsblatt, 1928, pts. 4–6.
12. Schiff: For technique, Technik der Blutgruppenuntersuchung.[5]
13. Schiff and Adelsberger: Zeitschrift für Immunitätsforschung, 1924, p. 335; Sachs: Münch. med. Wochenschrift, 1927, No. 4.
14. Thomsen, O.: Klin. Wochenschrift, 1928, p. 198; Ugeskrift. für Laeger, 1928, p. 597

Clinical and Laboratory Notes.

A CASE OF ABDOMINAL AORTIC ANEURYSM,

WITH RUPTURE AND FORMATION OF FALSE ANEURYSM AND EXTENSIVE EROSION OF VERTEBRÆ.

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CASES of aneurysm of the abdominal aorta are comparatively common, and terminal rupture of the aneurysm is by no means rare. In the following case death occurred probably five months after the first rupture, and the history of the intervening period and the post-mortem findings seem worthy of record.

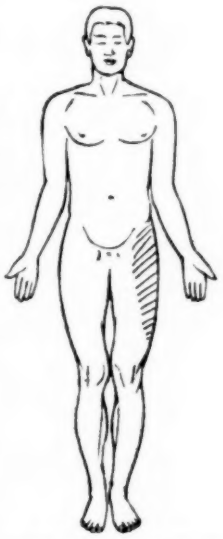
The patient, a storeman aged 43, was admitted to the Glasgow Royal Infirmary on Sept. 27th, 1927, complaining of pain in the abdomen. Four weeks before admission, while at work, he had been seized with an attack of acute pain in the right side of the abdomen. The pain had been very severe, "doubling him up," and had lasted for about 20 minutes. He had continued at work, but during the next two weeks the pain had recurred at intervals, commencing in the left upper abdomen and shooting downwards and outwards toward the left flank. On Sept. 19th he was compelled to give up his work as the attacks were occurring more frequently—three or four in the day—and the pain now radiated downward to the outer side of the left thigh. He made no complaint save of pain. His work was very hard, involving heavy lifting. He had always been a heavy drinker. He had had dysentery in Salonica in 1917 and had been in hospital for six months; but apart from occasional attacks of "influenza" he had otherwise been very healthy.

He was a small well-built man of healthy appearance. The abdomen was slightly distended, the distension being most marked in the upper part and particularly on the right side below the costal margin. Palpation in this area revealed a mass below and easily separated from the liver, slightly tender, with a rounded lower margin, and distinctly pulsatile. The pulsation was both forcible and expansile. On auscultation the cardiac sounds were heard even more distinctly than over the præcordium, and there was a loud systolic murmur. The spleen could not be felt, but there was some tenderness in the left hypochondrium. There was some general rigidity of the whole abdomen but no ascites. Posteriorly there was considerable resistance to palpation in the left lumbar region and immediately below the ribs a pulsating swelling was apparent, involving the twelfth rib in its movement. In this area also the heart sounds were heard with great distinctness. The lower dorsal and upper lumbar vertebræ were almost fixed and the spine showed a slight general kyphosis. He complained of pain in the left iliac region radiating down the outer side of the thigh. In the area of distribution of the ilio-hypogastric and external cutaneous nerves there was an anæsthesia to touch and pain (Fig. 1). The epigastric and abdominal reflexes were absent. The knee-jerks and ankle-jerks were present and equal. The plantar reflexes were equal and flexor in type. All other reflexes, including the pupillary, were normal. Movement at the hip- and knee-joints was free and painless. The heart was normal in size and position. There was a short systolic murmur at the apex and over the sternum. The lungs were normal. The liver was slightly enlarged. The urine was normal. The Wassermann reaction was +++ positive.

Radiography of the spine on Oct. 17th showed a lack of definition in the left border of the eleventh and twelfth dorsal vertebræ, and a distinct shadow on each side of the ninth, tenth, eleventh, and twelfth dorsal vertebræ.

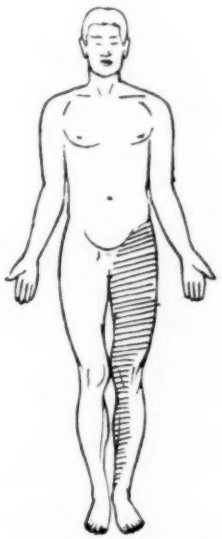
On Oct. 24th the patient complained of very severe pain in the left leg extending downwards from the buttock. He became very pale and collapsed with a weak and rapid pulse. Pulsation could still be felt in the upper abdomen and in the lumbar region, but the heart sounds were much more faintly heard. The entire left side of the abdomen became rigid but not tender. By the next morning he had rallied and appeared little changed, but the abdomen was now generally distended and rigid and there was a large area of dullness to percussion in the left flank. The left leg was held flexed at the hip and knee and any attempt to straighten the leg caused acute pain. No pulsation could now be detected in the left femoral artery. The right femoral artery was easily felt. On Oct. 26th and again on Oct. 31st similar attacks occurred, each of shorter duration, lasting about an hour. But whereas severe pain had preceded the collapse in the first attack, in the second and third attacks the collapse occurred without any pain whatsoever. From both attacks he recovered under stimulation. On Nov. 2nd a band of bluish discoloration was noted in the left flank, and the abdominal wall showed an area of induration and swelling clearly due to extravasated blood. The left knee-jerk could not now be elicited, but the left plantar reflex was present and flexor. There was complete anæsthesia over the front of the left thigh and the muscles of the thigh and leg were considerably atrophied. Gradually the discoloration disappeared and the indurated area in the abdominal wall became smaller, harder, and more defined above. Below it had spread downwards over Poupart's ligament, and the femoral artery could now be felt pulsating

FIG. 1.



Area of anæsthesia to touch and pain on Oct. 17th.

FIG. 2.



Area of anæsthesia to touch and pain on Nov. 29th.

to its inner side. There was movement of the left foot and toes, but the leg could not be extended, probably on account of the pain, as the muscles could be felt to contract when the attempt was made.

On Nov. 26th œdema appeared in the left foot and leg. Bed-sores began to form over the back and legs. The general condition had greatly deteriorated and morphia became necessary on account of the discomfort. On Nov. 29th the mass on the left side had become very hard and localised. The sensory disturbance had increased in extent, involving the inner side of the left lower leg, and was clearly of root distribution (Fig. 2). The left plantar reflex remained active and flexor and vibration sense was unimpaired in the leg. On Dec. 8th incontinence of fæces commenced and on Dec. 19th the abdomen was much distended with free fluid. On Dec. 20th he had another attack of abdominal pain and collapse, from which he again recovered. Increasing œdema and weakness made accurate examination difficult, but the area of anæsthesia appeared unchanged. In spite of morphia, any attempt at movement at the left knee or hip still produced intense pain. The left knee-jerk remained absent, but the foot and toes could still be moved. On Jan. 5th an area of dullness was detected at the base of the left lung with diminished breath sounds. He became progressively weaker and died on Jan. 17th, 1928.

Post-mortem Report.

The valves of the heart appeared normal except for slight sclerosis in the aortic cusps. The myocardium showed nothing of note. A few atheromatous patches were evident in the coronary arteries. There was no evidence of syphilis in the thoracic aorta. The left lung showed collapse of its lower lobe due to a collection of about one pint of blood in the pleural cavity. The abdominal cavity contained about two pints of deeply blood-stained serous fluid. The liver was slightly atrophied; the spleen was more than twice its normal size.

Pushing forward the lesser peritoneal sac and appearing between the gall-bladder and the hepatic flexure of the colon

was a large aneurysmal sac about the size of an orange. The appearance of the sac suggested that the aneurysm was of considerable duration. Evidently connected with this, and occupying the entire left half of the abdomen retroperitoneally, was a large false aneurysmal sac. The left kidney was involved in the mass, the outer border of which was difficult to define, as the partially organised blood clot appeared to fuse with the tissues of the left flank. The lower end of the dilatation had a similarly indefinite margin where the tissues above and below Poupart's ligament were in an obvious state of early necrosis. There was deep erosion of the bodies of the tenth, eleventh, and twelfth dorsal and first lumbar vertebræ (Fig. 3). The second lumbar vertebra presented a considerable erosion on the left side of its body close to the transverse process. The erosion was irregular and the intervertebral discs had been largely spared. At two points the erosion was sufficiently deep to expose the spinal canal.

FIG. 3.

Showing erosion of vertebræ.

On dissection the original aneurysm was found to be saccular, originating immediately below the diaphragm in the abdominal aorta and involving the origins of the cœliac axis, mesenteric and renal vessels. The drag of the mesenteric vessels had produced a deep groove anteriorly, so that post-mortem examination suggested a bilocular sac. On the right side the sac was firmly adherent to the vertebral bodies behind the eroded areas. On the left side the attachment was not so well defined, and a definite edge to a further aneurysmal sac could be determined. Anteriorly this third and largest part of the aneurysm was limited by the greatly thickened and fibrosed posterior peritoneal layers, incorporated in which was the crushed and apparently functionless left kidney. The aneurysmal cavity was filled with soft laminated mixed clot. No definite posterior limit could be determined, the clot being limited by the muscles of the posterior abdominal wall. The source of the final hæmorrhage into the pleural cavity could not be determined satisfactorily.

Reviewing the case as a whole in the light of the post-mortem findings, the course of events would appear to have been somewhat as follows. The attack four weeks before admission was probably due to the first rupture of the aneurysmal wall and involved the tissues to the right of the vertebral column. This, however, did not recur, as the right-sided pain disappeared and did not return. In some of the subsequent attacks before admission extension occurred against the left side of the vertebral column and pain was then experienced on that side. At first the nerves distal to the sacral plexus roots (ilio-hypogastric and lateral cutaneous) were involved, but by Nov. 29th the roots themselves had become affected and the sensory defects became definitely of root distribution. In the earlier attacks the nervous tissues were irritated and pain was acute, but latterly (after Oct. 26th) pain was practically never complained of and the sensory loss became the main feature of the case. The area of anæsthesia and the loss of the left knee-jerk pointed to the destruction of roots D 1 and 2 and L 1, 2, 3, and 4. The persistence of the flexor plantar reflex showed that L 5 and S 1 and 2 were not involved and, with the unimpaired vibratile sensation in the leg, suggested that the cord itself was not affected. Post-mortem examination showed the cord to be undamaged.

I am indebted to Dr. John Cowan for permission to publish this case and to Mr. J. A. G. Burton for the pathological report.

THE PERSISTENCE OF ANAEROBIC BACTERIA IN WAR WOUNDS

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THE conditions under which the late war was fought rendered it certain that penetrating wounds, due to projectiles, would contain the spores of anaerobic bacteria, and in fact the incidence of "gas gangrene" throughout the war, and tetanus in the early stages, was a serious problem. Experiments on animals show that these spores, when injected, persist a long time, certainly for months; and surgeons, as a result, are in the habit of protecting patients, in whom it becomes necessary to remove pieces of shrapnel, with antisera. It is of interest, therefore, to discover whether such foreign bodies do in fact harbour the spores of typical war time anaerobes, and especially of the pathogenic forms. In the "Medical History of the War" it is stated that anaerobic organisms have been isolated from war wounds for periods up to five years. The recorded organisms are *B. welchii*, *B. sporogenes*, and *B. tertius*, and probably *B. tetani*.[1]

An Exceptional Case.

Opportunities for examination of retained foreign bodies will become progressively fewer, and even now only those cases come to operation where pain, infection, or a persistent sinus render it essential. I have therefore been in the habit of culturing all such foreign bodies after operation. Nearly all of them have yielded anaerobic spore-bearing organisms, but, apart from the case here related, no pathogenic effects have been found in animals on injection, and the organisms have most closely resembled *B. sporogenes*.

The exceptional case was that of a man aged 35, who received multiple wounds in August, 1918. He believed he was shot with an explosive bullet by a sniper, but he was rendered unconscious, and the foreign body recovered appeared to be a piece of high-explosive shell. He was given a prophylactic dose of serum and two foreign bodies were removed from the arm. His wound became septic but he recovered in two months. He has since suffered from an extensive crop of boils around the site of the wounds; these appear to have been superficial. On one occasion he had a severe axillary abscess.

No sinus ever formed over the foreign body here discussed, which attracted attention owing to pain and swelling. It was situated very deeply in the scapular region, in relation to the posterior thoracic wall. It was operated upon by Mr. R. H. Boggon, resident assistant surgeon at St. Thomas's Hospital, and a large abscess was found, communicating through a sinus with the foreign body. The abscess was drained and the piece of metal, weighing about four grammes, removed. The wound discharged freely for several weeks. *Staphylococcus aureus* alone was grown from the discharge; no anaerobic forms were found in cultures or films.

The piece of metal was placed in Robertson's medium and incubated anaerobically. Vigorous gas formation followed; a hæmolytic streptococcus, facultatively anaerobic, was isolated. It never formed chains of more than four organisms, and showed a large proportion of Gram-negative forms. A subculture into Robertson's medium showed a mixed culture, including spore-bearing anaerobes of different types.

The original culture was also sown in a medium containing 75 per cent. of beef broth and 25 per cent. of fresh human serum. It was then boiled for ten minutes in a water-bath. A large Gram-positive bacillus was found which stained very irregularly, and grew frequently in pairs. Gram-negative forms were also found. Experiments were continued with this relatively pure culture. Subcultures were made on to blood agar and *B. subtilis* was also identified. Finally a single colony on blood agar was selected. It was a flat semi-transparent colony, growing with crenated edges, and apparently contained only a large Gram-positive mobile bacillus and a terminal spored bacillus. In Robertson's medium it rapidly digested the meat, and after two or three days there was some blackening. A crystalline deposit formed, containing leucine crystals but no tyrosine. The

[1] Official History of the War. Medical Services. Pathology, p. 142. London, 1923.

supernatant fluid remained cloudy. When examined after 24 hours a large Gram-positive bacillus was found, but on later cultures only irregular Gram-negative forms and spores were present.

A subculture was made into 2 per cent. maltose broth, and after 18 hours' incubation 0·5 c.cm. was injected intramuscularly into the leg of a mouse and a guinea-pig. Both animals died after 18 hours. The muscular tissue was digested down to the bone, which was visible. The liver and lungs were placed in a Petri dish and incubated. In 24 hours they were completely liquid. Smears from the site of injection showed both the large Gram-positive bacillus and terminal spored organisms. The guinea-pig's heart blood showed morphologically only the large bacillus.

Summary of Results.

Summarising the results to date, it will be noted that apparently a very mixed culture was grown from the foreign body; that this was purified by boiling for ten minutes; that at least two forms were still present after single colony culture; and that the heart blood of the dead animal showed, apparently, only one. Of course, morphological appearances are of little value among anaerobes.

The guinea-pig's heart blood was next incubated in Robertson's medium. Digestion both of it and of coagulated serum was rapid. Gas was not formed. Forty-eight hour cultures had no effect on three guinea-pigs. One c.cm. of an 18 hour culture, however, quickly produced massive œdema and liquefaction of tissues in three guinea-pigs. These were killed, as the lesions were obviously of the same type as those earlier recorded. Two c.cm. of *B. welchii* antiserum and 2 c.cm. of the patient's serum failed to give any protection when injected simultaneously with 2 c.cm. of culture. Five c.cm. of a 12-hour culture was filtered through a Seitz and injected intravenously into a rabbit; the animal remained perfectly well.

On further subculture the strain became again obviously mixed. Profuse gas formation and blackening and the medium suggested *B. sporogenes* and a terminal spored form *B. cochlearius*. However, a spore-bearing anaerobic motile Gram-positive bacillus, liquefying living tissue in early, but not in late, cultures, was present. Only one known organism, the rare *B. histolyticus* of Weinberg and Séguin,[2] conforms with these findings. It was found by them in a case of gas gangrene during the war, and has since been found in the soil and in the fæces.[3] This organism, together with several other anaerobic forms not identified, but probably including *B. sporogenes* and *B. cochlearius*, had been present in a patient's wound, without sinus formation, for more than eleven years. Certainly no lesions resembling those found in the animals were found in him. The hæmolytic streptococcus and the staphylococcus were quite sufficient to cause his symptoms. But the results, together with former ones, indicate that the spores of anaerobic bacteria, even of pathogenic types, may persist in war wounds for many years. Whether they might ever have become pathogenic is a question on which these results throw no light. The "Medical History of the War," [4] however, states that serious and even fatal "flares" have followed such operations as these.

My thanks are due to Mr. J. B. Harman, who assisted in the bacteriological work here described, and to Sir Cuthbert Wallace for permission to publish this case.

[2] Weinberg, M., and Séguin, P.: Comptes rend. de l'Acad. des Sci., 1916, clxiii., 449.

[3] System of Bacteriology, Med. Res. Council, London, 1929, iii., 244.

A GUINEA SCHEME AT KING'S COLLEGE HOSPITAL.—The governors have adopted a new rule relating to guinea subscribers. Under this scheme subscribers who become private patients will be entitled to deduct the whole amount of their subscriptions from the cost of treatment.

DERBYSHIRE WOMEN'S HOSPITAL.—The Duke of Devonshire recently opened the new buildings of this hospital, which have cost about £43,000. There are over 40 beds, including a recovery ward, an X ray department, and seven sun balconies.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

AT a meeting of this Society, held on Oct. 28th, the chair was taken by Mr. DONALD ARMOUR, the President, and Mr. A. E. HAYWARD PINCH opened a discussion on

RADIUM THERAPY.

The early hopes of radium as a panacea for all ills, he said, had not been realised, but its subsequent derision had been equally unjustified. It was now universally recognised as a valuable and in many respects unique addition to the surgeon's armamentarium. He deprecated strongly the loose and indiscriminate use of the phrase "radium cure for cancer." Radium aided surgery but did not abolish it. Radium therapy—the treatment of disease with radium—was a very wide subject, and meant a great deal more than the treatment of malignant disease by gamma radiation. It could be divided into two main divisions: superficial which might almost be termed beta radiation, and gamma radiation therapy with apparatus so screened as to emit only a minute portion of hard beta or pure gamma radiation. Superficial therapy was subdivided into the treatment of malignant and non-malignant conditions. It was extremely useful for a variety of disorders not very important in themselves, but sources of extreme annoyance to the patient—e.g., pruritus, corns, acute tender papillomata of the feet, and the acute tender papilloma of the ear which so effectively prevented sleep. One radium treatment was an absolute specific for these nine times out of ten. It might act as a charm occasionally in a case of lupus vulgaris which did not respond to light. It would not cure lupus erythematosus, but would improve the appearance remarkably and avert recurrence for many years. It was also extremely useful in bad keloids, such as were sometimes left by vaccination; it would at least flatten the scar. Diffuse cavernous nævus responded in an almost miraculous fashion. The malignant condition in which radium therapy was most useful was rodent ulcer. A cure could almost be guaranteed in 95 per cent. of cases with one screened treatment. Mycosis fungoides was another condition in which the outlook had been completely revolutionised by radium. Epithelioma of the cornea could not be needled, but an unscreened exposure of about an hour would practically cure every case; the growths were proliferative rather than penetrative. Sarcoma of the eye also benefited. He had treated dermatitis pigmentosa successfully.

Deep Radium Therapy: Gamma Radiation.

Of non-malignant conditions the first was menopausal hæmorrhage, in which deep gamma radiation was marvellous and an almost certain cure. Cure, however, must not be promised to a young girl with essential uterine hæmorrhage. Tuberculous adenitis, if treated before suppuration had occurred, could almost certainly be cured without disturbance of the skin or of the patient. Aspiration followed by radiation gave good results. Radium would not cure splenic leucocythæmia but would materially alleviate it and prolong life; the spleen receded from the iliac fossa to its normal impalpable position, unless there had been a good deal of fibrosis. The period of life of a patient with lymphadenoma was put in Osler at two years; after radium treatment it might be put at four or five years, and some cases had lived for six years. The glands disappeared and the patient gained in comfort and happiness.

The treatment of malignant disease by gamma radiation had been much discussed in the press.

There were only two types of case in which he would hesitate to advise radium instead of operation: when the growth occurred in a very œdematous zone, and when there was a strong syphilitic taint, which might cause intense destructive reaction. He described three typical problem cases, for all of which he would use radium: an endocervical carcinoma in a working-class mother; a mammary cancer in a society woman who feared disfigurement; and a cancer of the tongue in a man of 60. In 90 per cent. of cases radium would cause disappearance of a growth in uterus, breast, or tongue in five or six weeks. Removal of the primary growth, however, was far from constituting cure. Mr. Pinch confessed that he did not know the best method of treating the glands, whether by needles and seeds in and around, contact radiation from screened applicators, cross-fire or focal application. In some cases the result was remarkable, in other apparently identical cases nothing happened. One of the greatest problems of radium therapy was the successful treatment of secondarily infected glands. He had treated some hundreds of cases of carcinoma of the œsophagus and never cured one. One difficulty was to determine the exact extent of the disease; the bismuth meal gave length and apparent width, but no indication of the depth of penetration of the mediastinum. He had seen five cases diagnosed as cardiospasm; even a very thorough œsophagoscopy had not revealed any growth, but in four of them autopsy had shown a growth just behind the posterior wall of the stomach. Radium therapy could not be learnt in a week, however skilful the tutor or apt the pupil. In a year the pupil might possibly know enough about it not to do any mischief—but no more. There was no antidote to an overdose of radium: radium therapy must not be embarked on lightly. In Talleyrand's words "Pas trop de zèle," or—"For God's sake be careful." The Radium Institute would always be pleased to place its knowledge at the disposal of anyone who asked for it.

The Physicist's Attitude to Radium Therapy.

Prof. SIDNEY RUSS suggested that when a tube containing radium was put into the body, whether into malignant or non-malignant tissues, certain quite definite physical conditions had to be coped with. The question was how far the tube would have the desired action. Experimentally, parts of the irradiated tumour could be removed to test their viability in a susceptible animal. It was found that the cells had not been killed but would not grow. Radium did not cauterise cells, but caused some action which subsequently prevented proliferation. Doubling the dose did not double the range of lethal action, nor could the useful action of a tube be extended by leaving it in indefinitely, owing to local damage. Prof. Russ then showed diagrams illustrating how the intensity of a tube at various distances was calculated from the sine of the angle subtended by the tube. The intensity fell off very rapidly, so tubes were "staggered" in a line to supplement each other. It was astonishing how large an area could be uniformly irradiated by this method. By measuring the lethal range of a tube in animal tissues a fairly clear idea could be obtained of its effect on human tumours. It was impossible to think of the Stockholm technique as one that dealt effectually with extensions of the primary growth. An interesting feature of the development of radium therapy was the reduction of the intensity used in the tubes. Strong tubes had given very bad results. The reaction was very much more favourable when small intensities were given for a long time, because dividing cells were more vulnerable to radiation than cells in other phases. Radiation did two things: it acted on the dividing cell so that the daughter cells were abnormal and did not grow into mature cells, and it prevented growing cells from reaching the stage of division. If the radiation were not carefully planned for its purpose the malignant cells would reassert themselves in the course of time.

Discussion.

Mr. DUNCAN FITZWILLIAMS felt that curietherapy was at present in such an early experimental stage that no dogmatic statements were justified. There were three great centres, each carrying out a different but perfectly stereotyped technique, and it was difficult to get anyone to experiment with unknown possibilities. As things were, radium was more abused than used, and more was to be learned from failures than from successes. He feared a commercial exploitation of radium which would make things much worse.

Dr. J. DOUGLAS WEBSTER showed a number of slides which illustrated successful radium treatment of malignant cases and various methods of technique. He referred to the grave danger of radium burns, and said that large doses should be applied from a distance of 4–6 cm.; this gave more effect on the depth and less on the surface. He commented on the conflict of opinion about the different effects of different wave-lengths in different parts of the body, and the various techniques used to protect the areas of secondary spread in mammary cancer. In his experience failure was usually due to faulty technique in dosage. It was absolutely necessary to examine the patient every three months for five years and to treat recurrences promptly. Dr. Webster urged the necessity of further research, particularly into the technique of application, and the exploration of new methods.

Sir JAMES DUNDAS-GRANT said he had been impressed with the extraordinary relief afforded by radon to patients with cancer of the œsophagus and larynx. He said he had also been much impressed by the results of X rays in laryngeal carcinoma, describing several cases. He thought that operation followed by X rays was coming into vogue.

Mr. ARTHUR EDMUNDS said that no speaker had tackled the three problems propounded by Mr. Pinch. He would do a radical operation on the society woman and send her to a firm of corset-makers to be fitted with a suitable substitute for the lost breast. He would do a complete dissection of the glands of the neck of the tongue case and insert radium.

Mr. WILLIAM GILLIATT, speaking of Mr. Pinch's first case, said that endocervical carcinoma was seldom diagnosed in the consulting room. It always extended very much further than the manual examination would suggest. Radium was nowhere more useful than in gynæcological practice. Preoperative irradiation was nearly always beneficial; it caused disappearance of hypertrophic growths and healing of ulcerative growths, and greatly diminished the risk of the post-operative sepsis which caused the death of many Wertheim cases. There was a potent individual factor in the reaction to radium.

Dr. C. E. LAKIN preferred radium to X rays for splenomegalic leukæmia; it seldom caused constitutional disturbance, whereas prolonged deep X rays might make people really ill.

Reply.

Mr. PINCH, replying, proposed that one meeting each year should be devoted to a discussion of radium failures and mistakes; the results would be of great importance. There was no one technique in radium treatment; it was in a state of flux. Everyone must work intelligently, record successes and failures, and have the results collated and scientifically analysed after five years. He thought that personal idiosyncrasies played a larger part in gynæcological cases than in general surgery.

ABERDEEN ROYAL INFIRMARY.—By means of a special appeal, Sir Andrew Lewis, Lord Provost of Aberdeen, recently raised over £400,000 for the erection of a new infirmary. It is now stated by the board of directors of the institution that, in consequence of altered plans and increased estimates, the cost of the work will be £600,000.

ROYAL SOCIETY OF TROPICAL MEDICINE.

TROPICAL MEDICINE AT THE TURN OF LAST CENTURY.

IN his presidential address to the Fellows on Oct. 18th Dr. G. CARMICHAEL LOW passed in review the gains to tropical medicine made between 1894 and 1914. He recalled how, at the turn of the century, a brilliant company of explorers in the new world of tropical pathology opened up by Patrick Manson rapidly extended and consolidated his pioneer observations of the part played by insects in carrying disease.

Malaria and Mosquitoes.

Manson left Hong-Kong in 1889. He had retired from practice and gone to live in Scotland, but the great depreciation of the Chinese dollar in 1890 brought him back to practice again and to London. Here, four years later, Ronald Ross sought him out. In Bangalore in 1889 Ross had studied malaria, but failed to confirm Laveran's discovery of the malaria parasite. Manson now showed him the parasite and withal explained his famous mosquito-malaria hypothesis which had been born of and fostered by his pioneer work in Amoy in 1877 on the development of the embryos of *Filaria bancrofti* in the tissues of the mosquito. In 1894 the predominant opinion was that "flagellation" of the malaria parasite signified, and was the product of, the parasite's death and disintegration. Manson taught the contrary: "Since the flagella appear only when malarial blood gets outside the body," he said, "their purpose must be to continue the life of the parasite in the outer world . . . for the purpose of infecting mosquitoes which suck the blood of patients." This was a chain of reasoning from which Ross found it impossible to escape; and in the upshot, on returning to India in 1895, he, for his part, began those researches which eventually justified the hypothesis that malaria was transmitted by mosquitoes. But before this historic achievement MacCallum, in 1897, settled all controversy about the exact nature of the "flagella" by showing that they were microgametes. On August 20th and 21st, 1897, Ross, in Secunderabad, made an important discovery. In the stomach of two "spotted-winged mosquitoes," bred from larvæ and fed on a patient with malaria crescents in the blood, he found certain cells containing pigment granules indistinguishable from those seen in malaria parasites; and a month later he found like cells in another species of anopheles—also bred from larvæ and fed on malarial blood. This shining discovery Ross reported promptly to his chief in the Madras Presidency; and now, with the solution of the great problem in his grasp, he was given urgent orders to proceed at once to Rajputana where the dry cold weather put an end to mosquito work. At this juncture Manson interceded with the India Office in London, with result that in January, 1898, Ross was placed on special duty for six months to continue his malaria research. He arrived in Calcutta in the following February, but now armed with MacCallum and Opie's proof that the crescents were sexual forms and not special "sporulating" ones. Human malaria was scarce in Calcutta, so, acting on Manson's suggestion, Ross turned to the malaria of birds, and here found material in plenty. In March he had tracked down the species of mosquito capable of carrying the malaria parasite of birds, and within a few more weeks had traced step by step the cycle of the parasite's development in this mosquito. In July, 1898, he telegraphed to Manson, who announced the discovery at the British Medical Association meeting in Edinburgh at the end of that month. But the "mugwumps" had not finished with Ross; again and quickly he was forced to discontinue malaria work. He was sent to Assam to investigate kala-azar, and thus, said Dr. Low, it fell to Grassi, Bignami, and Bastianelli, in Rome, to verify the great discovery for human malaria. This would not have been done at the time but for Ross's work—the Italian researches followed his, and were not independent of them.

Manson's Later Work.

In July, 1897, Manson was appointed Medical Adviser at the Colonial Office. His influence appeared in March, 1898, when the Secretary of State for the Colonies, Joseph Chamberlain, issued the first of his letters to the General Medical Council, the medical schools, and the governors of tropical colonies, urging the need of special instruction in tropical diseases. These letters led directly to the founding of the schools of tropical medicine in Liverpool and London before the end of the century—a lead since followed by many nations. In 1877 Manson, in Amoy, discovered the nocturnal periodicity of the embryos of *F. bancrofti* in human blood, and followed this up by showing that the embryos developed and underwent a metamorphosis in the thoracic muscles of the mosquito *Culex fatigans*. He surmised that the mosquito then died in water; the metamorphosed embryos escaped into the water, and through this medium entered man.

In 1899 Manson set Dr. Low the task of examining by serial section a number of mosquitoes which had fed on the blood of filarial human patients, and been kept alive for varying periods afterwards. They had been sent to Manson by Bancroft in Australia. In the heads of some of the mosquitoes, 12 to 20 days after feeding, metamorphosed embryos were found, and at first taken to be just aberrant wanderers. In March, 1900, a section was examined which had taken in the whole length of the proboscis—and there, lying along it, were two completely metamorphosed embryos. When it was shown to Manson he exclaimed: "If only I had known this before my mosquito-malaria theory—how it would have helped me!" The ball had been set rolling, and fast. In 1900–01, Read, Carroll, and Lazear demonstrated in Havana that yellow fever was transmitted by the mosquito *Aëdes egypti* (*Stegomyia fasciata*). Lazear himself was bitten by one of these infected mosquitoes and died of yellow fever. The first and still the greatest triumph in practical prevention of tropical disease, the direct outcome of these discoveries, soon followed. Havana was completely rid of the secular scourge, and Gorgas was now armed with the knowledge which he expressed in the sanitary control that made possible the digging of the Panama Canal—where once malaria and yellow fever had signally defeated de Lesseps.

ROYAL SOCIETY OF MEDICINE.

SECTION OF UROLOGY.

UROLOGICAL STATISTICS.

AT a meeting held on Oct. 24th Mr. FRANK JEANS delivered his presidential address on Urological Statistics as a Criterion of Progress. He questioned the conclusions to be deduced from figures, because clinical surgery was not exact enough to be reduced to numbers. Medicine was a science, surgery an art, and general practice an inspiration. The essential to interpreting statistics was the realisation of the inconstant factors, which far outnumbered the constant factors. The constant factors were few. They were:—

1. The name of the disease, but even this was subject to differences in nomenclature.
2. The age of the patient.
3. The sex of the patient.

Beyond this the factors became more vague. They were:—

1. The duration of the disease; this figure, if given in weeks or years, ignored the fact that one man in a week may become as ill as another man in a year—the old fallacy of the fourth day appendix.

2. The presence or absence of sepsis. This was difficult to measure, though in the war it had been roughly done by counting organisms in a microscopic field.
3. Concomitant diseases independent of obstructive urinary lesions.
4. The temperament of the patient; this frequently had determined the question of operation.
5. The weather. Kocher the elder said: "Never do a thyroidectomy on a foggy day."
6. The surgeon who does the operation, or in "pooled" statistics of various hospitals, a mixture of surgeons of very varying ability and skill.
7. The stage of the surgeon's career. Was it done when he was at the height of his daring, or at the height of his efficiency, or at the height of his fame? These were all peaks in the curve at different points in a surgeon's career (and in the careers of actors, violinists, and vocalists). A block of statistics from each of these three periods might or might not yield the same mathematical results as a block from the whole period of his career, but would be clinically different.

Certain factors that ought to make results better were considered by Mr. Jeans.

1. *Asepsis.*—Nothing had been added to the technique of the theatres at the Royal Infirmary, Liverpool, which was as perfect 25 years ago as is to be seen in any theatre to-day.

2. *Anæsthesia.*—It was true we had greater experience of a larger variety of methods, but it was only the increased choice that helped us to select the right method.

3. The greatest influence was increased knowledge of the *efficiency of the kidneys*, and therefore the knowledge when to operate. Many men were alive to-day because they had had preliminary drainage before prostatectomy.

There was one factor, not often mentioned, which might make the results of urologists look worse on paper, and that was the decentralisation of surgery, first from London to the big provincial cities, and later from them to smaller towns. The result of this was necessarily that the pure surgeons and the pure urologists, whether in London or in the teaching provincial schools, were getting a far higher proportion of difficult cases, the ordinary easy ones being done, selectively, by surgeons who were also general practitioners. Specialised experience therefore became qualitative as well as quantitative. Had a deep interest in one's own statistics any moral or immoral influence upon a surgeon's decision to operate upon a desperate case? Theoretically it had none; but surgeons were, after all, human. Impressions after the age of 40 were more valuable than statistics, always provided that the surgeon had not had the disease himself. Personal experience was graphic but misleading.

The results of urinary surgery had undoubtedly improved enormously, but it was difficult to prove this by figures. One should continue to aim high, but one had to choose between two poetical views—Shakespeare's "Striving to better oft we mar what's well," and William Watson's "To keep in sight perfection and adore the vision is the artist's best delight."

SECTION OF EPIDEMIOLOGY.

THIS Section met on Oct. 25th, with Dr. F. E. FREMANTLE, M.P., the President, in the chair, when a paper on

MODERN ASPECTS OF THE EPIDEMIOLOGY, PREVENTION, AND TREATMENT OF MALARIA

was read by Dr. S. P. JAMES. Malarial mortality, he observed, had decreased enormously in the last 100 years in North Europe, though chiefly because so many deaths were formerly ascribed to malaria in error. Deaths from this cause did, however, still occur in England, and in the same districts as were formerly reputed malarial. Why were they so few, when anopheles were as prevalent as he had found them? Were the feeding habits of these mosquitoes changing? Great social improvements, better food and better housing had limited malaria, but there were still places eight miles from a doctor, with bad houses, unceiled roofs, and no drainage, and to get rid of malaria in England better housing was of the first importance. Speaking of general paralysis, Dr. James mentioned a case infected with benign tertian in September but showing no reaction till a characteristic attack came on in April, a strikingly long incubation. He showed excellent photographs of a charcoal-burner's hut, a perfect mosquito trap, and of other houses in England in which mosquitoes had harboured and carried infection.

Sir MALCOLM WATSON said they had had good housing in Malaya but they had not got rid of their huge malarial death-rate till they had drained their areas. Drainage was required to destroy the larvæ of carrier species while they were together before they had turned into mosquitoes. People not living in the tropics could hardly appreciate the effects of tropical malaria which had depopulated great cities in Ceylon. Problems of malarial control were unending. He spoke of a district where the river had been embanked to avoid floods, and malaria had thereafter become worse, the floods having in the past carried away the larvæ in mass, while now these remained on the spot. —Dr. PHILIP MANSON-BAHR insisted on full use of quinine to prevent patients becoming carriers. —Dr. GORDON THOMSON said drainage and housing were both needed. People were mostly infected in their houses as Dr. James had said, and many bites were needed, for only 1 per cent. of mosquitoes were infected.—The recent reduction of malaria in the army in India through screening of barracks was mentioned with appreciation.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN MANCHESTER.

(*Continued from p. 880.*)

SECTION OF HISTORY OF MEDICINE.

IN a paper entitled

JOHN DALTON—EXPERIMENTAL PHYSIOLOGIST AND WOULD-BE PHYSICIAN

Dr. E. M. BROCKBANK, President of the Section, gave an account of the early life of the founder of the atomic theory as a schoolmaster at Kendal. Dalton had expressed in letters, two of which were published for the first time, the wish to become a physician. Having been discouraged by his relatives from entering the medical profession, he accepted an invitation to go to Manchester as teacher of mathematics and natural philosophy at the academy of that town. He remained there for about six years, and during that time used to discuss with the social reformer, Robert Owen, various religious and scientific topics, including his then undefined atomic theory. He soon became a member of the Manchester Literary and Philosophic Society, which was mainly composed of medical men, and took an active part in its proceedings. As the title of his papers showed, Dalton paid considerable attention to important physiological subjects to which he had been attracted by his interest in medicine. His contributions included papers on colour vision, the mind and its ideas and affections, respiration and the causes of animal heat, the effect of atmospherical pressure on the animal frame, and the quantity of food taken in health compared with the amount of the secretions during the same period. Dr. Brockbank concluded by giving some personal details relating to Dalton's dietetic habits, his colour-blindness, and his susceptibility to lead. His death, which took place in 1844, at the age of 78, was due to cerebral hæmorrhage.

Sir D'ARCY POWER read a paper entitled

Surgeons Who Were Never Surgeons.

By this he meant persons who had taken or obtained the degree of F.R.C.S. Eng., but had never practised

as surgeons, and apparently had never intended to do so. He gave short biographical notices of such men. First amongst them was Richard Robert Madden, who became a Fellow in 1855. He was intimate with Lady Blessington's circle, and became a friend of Lord Byron and Count D'Orsay. He was a special correspondent in Lisbon for the *Morning Chronicle*, and was Colonial Secretary in Western Australia. William Guybon Atherstone—F.R.C.S. in 1863—was in danger of being forgotten in this country, but he did invaluable service in South Africa, where he made straight the paths for Cecil Rhodes. He advocated the Cape to Cairo railway, desired to see the telegraph carried overland, recognised the first diamond brought from Kimberley, and became a member of the Legislative Council in 1884. Robert James Stone left England for Natal as Superintendent of Education, became a meteorologist, and organised the scientific apparatus at the South Kensington Museum in 1876. George Redford—elected F.R.C.S. in 1869—was registrar of the Crystal Palace collection of sculpture, and devoted his life to the care and description of works of art. His son, George Alexander Redford, was well known as the official examiner of plays. The Bishop of Labuan—Dr. Francis Thomas McDougall—seemed to have been the only bishop of the English Church who passed the examinations and was admitted a Fellow of the Royal College of Surgeons of England. He was an eminent Churchman, a good doctor, and a first-class fighting man. Alfred Smee had the post of surgeon to the Bank of England specially made for him that the Bank might retain his scientific services. He invented "Smee's battery," a durable writing ink, a method of printing cheques and notes, and rendered it impossible any longer to split bank notes. He was, too, a physiologist interested in the electrical parts of the science, and had he still been alive would have been amongst the foremost electrical engineers. Whilst he was still a student he invented the "gum and chalk" splints, which were superseded by plaster-of-Paris, which in turn were replaced by celluloid.

Dr. T. WILSON PARRY (London) read a paper illustrated by lantern slides on

The Stimulus given by Religion to Surgery during the Third Epoch of the Neolithic Period.

He showed that during that period the operation of craniotrypesis (holing the cranium) was performed on the living human skull in order to facilitate the departure of demoniacal spirits. The dead were then buried in dolmens, so that these events could be accurately dated. Large numbers of holed skulls recovered from dolmens could be seen to-day in public and private museums in different parts of France. There were, however, only two skulls on record which could have been in any way dealt with for morbid conditions. It was clear that the religious operation for the setting free of evil spirits was performed first, and later opportunity was taken by the experience thus gained to correct pathological conditions, thus giving a start to cranial surgery, which otherwise would doubtless have been kept back for many centuries. Dr. Parry showed how a skull exhibiting evidence of the ritualistic operation could be differentiated from other holed skulls of prehistoric origin, and pointed out that it was entirely due to the spiritual conditions of that day, which necessitated a surgical procedure for the cleansing of the individual from evil spirits, that cranial surgery took its origin.

In a paper on

James Braid

Dr. GEORGE FLETCHER (Manchester) stated that details of Braid's life were scanty, and his writings were now very scarce. He was born on June 19th, 1795, at Ryelaw House, in a part of Fifeshire which was afterwards transferred to Kinross-shire by the Boundary Commissioners. He was qualified at Edinburgh in 1815, and in 1826 came to Manchester, where he died on March 25th, 1860. He had little connexion with official medicine at Manchester. He was not on the infirmary staff, nor was he a member either of the Literary and Philosophical Society or of the Medico-Ethical Association. His advocacy of hypnotism led to his being regarded as somewhat of a charlatan by his more disciplined brethren. He early specialised in the surgery of deformities, and was apparently the first in England at any rate to have performed tendon shortening in paralytic talipes. The demonstrations of a travelling mesmerist led him to investigate mesmerism, and having found something genuine in it he gave lectures in various parts of the country in order to convince the public and the profession of its safety and value. In 1842 he published a pamphlet "Satanic Agency and Mesmerism," in which he replied to the criticisms which the Rev. H. M'Neile had made in a sermon. Next year appeared Braid's chief work, "Neurypnology." In it he defined the meaning of the word "hypnotism," which he himself had coined, and described the phenomena of the hypnotic state and his mode of inducing it. He devoted a large section to the investigation of the alleged phenomena of phrenology, but his results were discordant; in a later essay he repudiated a belief in phrenology. The second part of the volume was occupied by descriptions of cases of disease which he had treated with more or less success by hypnotism. Most of Braid's writings were occasional and controversial in character. He did not live to give a final account of his researches. In his later works he laid less emphasis on fatigue as a factor in exciting the hypnotic state, and recognised the rôle of suggestion in its induction, control, and therapeutic application. He did not, of course, discover that state, nor was he the first who contended that it was wholly subjective in character. His great merit lay in the fact that he stripped mesmerism of its baseless and occult extravagances, and reissued it in the form of hypnotism for the service of the physician and the psychologist. The subsequent development of hypnotism in France and elsewhere was largely the outcome of his labours. Braid's interests were not confined to hypnotism, which he employed only in the minority of his patients. The use of arsenic in trypanosomiasis was due to a suggestion which he made to Dr. Livingstone. He performed a Cæsarean section in 1847. Sanitary matters occupied his attention, and he kept in touch with natural history during his Manchester life.

Dr. E. BOSDIN LEECH gave an account of

Charles Harrison Blackley (1820–1900).

Blackley was a pioneer in hay-fever research, who, according to Dr. Leech, had not had sufficient recognition for his researches and discoveries. He took up medicine when 35 years old, and spent the remainder of a long life experimenting on the cause and treatment of the disease from which he himself was a sufferer. His work was all the more praiseworthy since he was a general practitioner with a large practice, and a really successful experiment on himself meant that he was incapacitated from work for the day. He was the first to prove definitely that pollen was the cause of the trouble, and that though grasses were the most frequent cause, still the pollen of other plants brought it on in varying, though definite, degrees. Others had surmised; but he experimented and proved. His ingenuity in devising apparatus, both for judging the effects of pollen and preventing it reaching the nasal mucous membrane, was very great. He practised in Manchester, so that the meeting was a suitable one for recognition of his work. Up to the present his fame was chiefly in America, where his work was more appreciated than at home.

WARMINSTER COTTAGE HOSPITAL.—Last week the Marquess of Bath, who gave the site, opened a new cottage hospital at Warminster. The old building, which has been in use for 63 years, was originally a farmhouse. The wards are all on the ground floor and one of them is named after Dr. R. L. Willcox, who has for many years been associated with the hospital.

Reviews and Notices of Books.

THE EXTRA PHARMACOPŒIA OF MARTINDALE AND WESTCOTT.

Nineteenth edition. Revised by W. HARRISON MARTINDALE, Ph.D., Ph.C., F.C.S. Vol. II. London: H. K. Lewis and Co., Ltd., 1929. Pp. 759. 22*s*. 6*d*.

A NEW edition of the second volume of the Extra Pharmacopœia appeared last week, and represents the results of four years' work; the first volume was issued a little over a year ago, and in its sequel Dr. Harrison Martindale has exercised similar care in the revision and arrangement. How necessary this is he points out in some prefatory words, reminding us of the overwhelming bulk and character of the scientific literature of to-day. This fact militates against the conciseness for which the Extra Pharmacopœia is famous, and the author is to be commended especially for one direction in which he has secured the invaluable quality—some of the relatively old material is purposely retained while references are given to newer views, perhaps destined to supersede existing ones, but still needing confirmation. In such cases the reader is directed to previous issues of the Extra Pharmacopœia for information as to the omissions made necessary in order to avoid overloading. As a matter of fact Dr. Martindale has managed to abstract with brevity and precision much of the world's literature germane to his objects, and, as showing the extent to which the compilation is up to date, it may be mentioned that several articles which were published in our issues of Sept. 29th and Oct. 5th of this year have been laid under contribution.

The first volume of the Extra Pharmacopœia is concerned chiefly with information upon the clinical use of chemicals and drugs, their characters, dosage, and methods of prescription, while the present volume sets out developments in investigations, details of experimental research, and certain machinery for diagnosis. One matter among many dealt with by laboratory investigation is mould inhibition by means of various preservatives, a complication which has constantly given practical anxiety in the preparation of pharmaceutical products and foodstuffs generally. An equally important section from the public point of view deals with the antiseptic powers of various chemicals. This chapter is particularly informatory, while it makes pleasant reading for ourselves because stress is laid upon the value of the work of the late S. A. Vasey, which was done at the instigation of THE LANCET and which, with modifications, has been employed in these investigations. Dr. Martindale points out that while there is in this country an inclination to discredit disinfectants as weapons against the germs of disease, the reason of this may be that under the Act of 1908 any useless preparation may be sold to the public without proof that it contains, for example, high germicidal power, that it makes or forms a due emulsion with water, and that it is not affected to a mischievous degree by temperature. The importance of distinguishing antiseptic action from germicidal power is pointed out, and a list of the more potent antiseptics arrived at by recent experiment is given alphabetically, with details of the researches. The information in these pages is of the first practical value.

Another section that will be immediately consulted is that dealing with milk analysis. We have here a résumé of the various Acts of Parliament, regulations, and official publications through which it is endeavoured to secure that the public obtain a milk of good quality and average chemical composition. The grading of milk is clearly dealt with, and the bacteriological standards of the various grades are given, as well as an explanation of the tuberculin tests in cattle, special reference to intradermal tests being added. The notes on the pasteurisation of milk are full, and we may commend the impartiality with which the views on a vexed subject have been collated. The author puts forward a suggestion which we believe is novel—namely, that the consumer might be supplied with milk refrigerated on the farm and delivered to him within a few hours of milking in thermo-isolated vessels. His proposal is backed by experiment, and he may be congratulated upon an idea which could be realised practically by the provision of cheap thermos flasks, which must also be strong and returnable.

The scope of the Extra Pharmacopœia, through the successful dispersal of many large editions, is familiar to all our readers; it remains to say that this addition to the series is, like its predecessors, a clear and authoritative publication, of the highest value to all medical men, and indispensable to many of us.

THE TRAUMA OF BIRTH.

By OTTO RANK. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1929. Pp. 224. 10*s*. 6*d*.

IT is agreed by psycho-analysts that what may be either memories or fantasies of birth play a part in the genesis of pathological anxiety and commonly emerge in the process of analysis, though to anyone not analytically minded the existence of the actual memory in the unconscious is not easily credible. Otto Rank, a Viennese analyst of repute, finds that the unconscious is right "where we have dared to follow it only hesitatingly and incredulously," and that in a number of cases the patient repeats his own birth for the most part quite faithfully in all its details. From this starting-point Rank explores the worlds, of myth, religion, art, and philosophy, finding everywhere proof that the primary trauma of separation from the mother underlies their development and manifestations. Without rejecting his original observations we may doubt whether he has done more than other single-minded enthusiasts who, exploring the same worlds, have found evidence for their own theories of human development, and we turn more expectantly to the medical implications of his proposition. He shows in his early chapters a fault common in psycho-analytical writings—perhaps due to the lack of the discipline of effective criticism—for it is sometimes difficult to distinguish established observations from deductions or mere obiter dicta. A statement on page 28 is startling in its non sequitur, when we read that the fact of the newly hatched young of a Cichlid fish taking refuge at night in the throat-pouch of the mother "proves that physiological sleep throughout the animal kingdom is a temporary return to the mother's womb." The writer should not thus make more difficult the task of giving impartial consideration to views that, as psycho-analysts freely admit, inevitably arouse opposition. The fault becomes less apparent in later chapters, as if the one frankly headed "Philosophic Speculation" had enabled the author to sort out his material and prepare the way for his lucid discussion of psycho-analytical knowledge and the therapeutic aspect. He has already claimed (page 4) that his analyses are comparatively short and now he boldly presents the opponents of analysis with the admission that he considers analysis is now in a position to free itself to an extensive degree from the work of investigation (that is, we assume, in the individual case) and to sever the Gordian knot of the primal repression at one cut, thus rendering the analytical process easier and quicker. It is for his fellow workers to decide how far this departure from accepted technique will be approved; his discussion shows an appreciation of the difficulties and limitations of therapy.

From the analytical point of view the book is important inasmuch as it deposes the Œdipus motif from its central position and makes it secondary to the birth experience. Erasmus Darwin, describing the reactions of the child at birth, suggested that the sensations then experienced might serve as the prototype of fear throughout life. By those who accept their observations the possibility of this biological

memory on the part of the organism will be confirmed by Rank and his colleagues, who attempt to show that the experience is actually conserved in the unconscious and is accessible to their methods of approach. The book is obviously intended only for those who have already travelled far along the same path as the author, and for them it should be full of interest.

AFTER-TREATMENT OF OPERATIONS.

Fifth edition. By P. LOCKHART-MUMMERY, F.R.C.S. Eng., M.A., M.B., B.C. Cantab., Senior Surgeon, St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum. London: Baillière, Tindall and Cox. 1929. Pp. 281. 7*s.* 6*d.*

THE appearance of a fifth edition is sufficient evidence that this book has proved of great value in the past. It has provided house surgeons and practitioners with just the kind of information about after-treatment that they need, and has given them details of the complications they may expect to meet and of the ways to deal with them when they arise. Unfortunately, in spite of the assurance in the preface that it has been brought up to date, that part of modern practice which is based on new knowledge is not given adequate prominence. For example, we can find no word about massive collapse of the lung, probably the commonest of the important pulmonary complications of operations. In the section on thyroid operations and their after-treatment iodine is not mentioned, while in that on pulmonary embolism and its treatment the word morphia does not occur. The article on surgical shock contains no account of histamine and its action; and while the statement on p. 96 of the same article that "the only form of transfusion which is permanently effective is human blood" is no doubt merely the author's somewhat dogmatic way of saying that a colloid solution remains in the vessels longer than a crystalloid one, gum solution has surely proved of sufficient value to be worthy of mention. In the discussion of the likelihood of gangrene if the main artery of the limb is ligatured for secondary hæmorrhage, no note is taken of the valuable war experience that simultaneous ligature of the vein materially lessens the risk. Finally, the insertion of a drainage-tube after the radical cure of hydrocele is not generally considered necessary.

That the radical of to-day is the conservative of to-morrow is a commonplace of politics, and although Mr. Lockhart-Mummery is justified in claiming credit for having advocated the shortening of the bed-period after the simpler abdominal operations from the three weeks of long ago to ten days, yet this period is now considered unnecessarily long by many surgeons. A few misprints need correction, such as "arthritis" on p. 54, where "arteritis" is meant, and "internal appendix" instead of "interval appendix" on p. 124. The book is written in a readable if somewhat dogmatic style, and it is only because it contains so much valuable information that it seems worth while to call attention to the need for incorporating some of the recently acquired knowledge which has been overlooked.

ANATOMY AND PHYSIOLOGY OF CAPILLARIES.

By AUGUST KROGH. Second edition. New Haven: Yale University Press: London: Humphrey Milford, Oxford University Press. 1929. 101 text figures. Pp. 122. 18*s.*

SINCE the first issue of this book in 1922 general interest in capillaries has much increased and a good deal of fresh and important work has been done, no doubt stimulated for the most part by the book itself. Specially notable are the researches of Landis on the quantitative measurement of skin permeability and of Lewis and his co-workers on the reaction of the skin to injury. Of these Prof. Krogh takes very full notice in this revised edition which in other ways as well is to a large extent rewritten. As before, it has the characteristics of its author. He is anxious everywhere to get some sort of quantitative idea of what is going on and to what extent, accurate if possible, but he shows over and over again that rough approximations are better than nothing at all. And he is not afraid of his imagination. What makes the book such good reading (which it certainly is) is not so much what he tells us as known, but his suggestive comment on what might be found out. He accepts Rouget cells as elements in the capillary wall of proved individuality, responsible for changes in calibre. And naturally a great deal of attention is given to Lewis's H-substance, though it does not seem to have occurred to Krogh that the phenomena of inflammation consequent on a clean aseptic skin wound have for many years been recognised as proving by exclusion that inflammation may be caused by the products of cell injury. Nor does he appreciate when he comments on the extreme whealing activity of the "poison" of the mosquito that this is an anaphylactic reaction which fits quite elegantly into the histamine saga.

DERMATOLOGY.

Précis de Dermatologie. Fourth edition. By J. DARIER, Médecin hon. de l'Hôpital Saint-Louis; Membre de l'Académie de Médecine. Paris: Masson et Cie. Pp. 1102. Fr.100.

FROM its first appearance in 1908 this work has occupied a distinguished position among dermatological text-books, and has been translated into four foreign languages. The collection of material and the preparation and selection of suitable illustrations for an up-to-date dermatological text-book is a task demanding not only much labour and time but also a comprehensive knowledge of current literature. Dr. Darier has given all of these freely, and has been in a position to enrich his book by accounts of his own classical contributions to the science of dermatology. The publishers have made a list of these in an appendix. This list reminds us that it is mainly to Darier that we owe the recognition and classification of the tuberculides, while his work on the sarcoids has justified the inclusion of a special type under his name (Darier-Roussy), while dermatologists all over the world speak of Darier's disease when referring to the condition which he has modestly called "psoro-spermose folliculaire végétante." Darier's more recent contribution to the histology of cutaneous epitheliomata goes far to explain the relative malignancy of the various types, and deserves more consideration than it has yet received from surgeons and radiotherapeutists.

In the augmented fourth edition of his text-book he has thoroughly modernised and largely expanded the sections on urticaria, eczema, parasitic and mycotic infections, &c., and has added a new chapter on diseases due to filtrable virus—e.g., herpes zoster—and another on dermatoses of autotoxic origin—e.g., prurigo and pruritus. The text throughout is brilliantly composed and arranged, and the sections on eruptions will stand as masterpieces of clinical phraseology. To read them is a relaxation rather than a labour, and so simple is the choice of words and idiom that a dictionary will seldom be required, even by those who do not read French easily. The one blot on the work is the old-fashioned method of reproducing the excellent illustrations and the absence of coloured plates.

THE MYSTERY AND ART OF THE APOTHECARY.

By C. J. S. THOMPSON, M.B.E. London: John Lane, The Bodley Head, Ltd. 1929. Pp. 287. 12*s.* 6*d.*

LAST year Mr. Thompson, who is honorary curator of the Historical Section of the Museum of the Royal College of Surgeons of England, gave us a valuable historical study of the quacks of old London. He now tells the history of the apothecary from the earliest times, tracing his subject from Assyrian, Egyptian,

Greek, and Roman and biblical times, through Arabian medicine and the Middle Ages, down to the end of the eighteenth century. Physicians at first dispensed their own drugs, and the custom of the apothecary dispensing for the physician appears to have been started in Rome. There is an interesting chapter on the three oldest remedies in the world: hiera picra (holy bitter), terra sigillata (sacred sealed earth), and theriaca (treacle). The first mention of an apothecary in England by that name is on the Pipe Roll for 1180, when Henry II. was in Ireland. An apothecary was Mayor of York in 1273. The apothecaries were originally associated with the pepperers, who in 1328 became the grocers; they did not split off into a company of their own till 1606. Mr. Thompson gives the results of much research on the ancient printed books on drugs and on the later pharmacopœias; and he brings out the fact, which is also mentioned in Mr. Francis Hackett's recently published study of Henry VIII., that this monarch dabbled in drugs, especially ointments, when not otherwise engaged. He notes, too, the habits of one Jessup, a grazier, who died at Lincoln in 1814, from which it has been calculated that in 21 years he swallowed 226,934 pills and drank 40,000 bottles of mixture; this is worse than Mrs. Pullet's record in "The Mill on the Floss." Specimens of apothecary's bills indicate that their charges were certainly high. There is a learned chapter on the druggists' carboys, which delight small children to this day in chemists' shop windows, and the queer symbols found on them. We could have wished that a chapter on the old jars, of which fine collections exist, had been included. The book is well printed and illustrated, and we have observed very few errors; William Linacre (p. 135) should surely be Thomas Linacre, and Vindax Ariovistus's Roman oculist stamp (p. 30) was found, not at Winchester, as stated, but at Kenchester, near Hereford.

STANDARD TREATMENTS IN THE TROPICS.

The Use of Standard Treatments in the Campaign against Disease in the Tropics. By J. NEIL LEITCH, M.D., M.R.C.S., L.R.C.P., D.T.M. & H. Pathologist, West Africa Medical Service. With an introduction by Dr. G. CARMICHAEL LOW. London: H. K. Lewis and Co. 1929. Pp. 64. 6*s*.

THE object of this essay, which was accepted as a thesis for the doctorate of medicine in the University of London, is praiseworthy. It is to advocate standardised methods of treatment for certain tropical diseases which prevail in Assam, where the author has gained his experience and where medicine is largely a problem of mass treatment. Standardised treatment is here advocated for malaria, amœbiasis, kala-azar, hookworm, and cholera. The various methods of treatment and the dosage and spacing of drugs do not differ materially from those given in most standard text-books, but to have them so succinctly set forth will be helpful to medical officers in charge of native labour. "*Quot hominis tot sententiae*"—that fine spirit of independence in medicine—still militates against universal standardisation, however, and will even survive misquotation in the introduction.

EYE STAINING.

Vitale Färbungen am Menschlichen Auge. By Dr. O. KNÜSEL (Aarau) and Dr. P. VONWILLER (Zürich). With 10 coloured plates and 36 figures in text. Berlin: S. Karger. Pp. 130. M.12.

THIS book is the joint work of a Swiss ophthalmologist and a Swiss anatomist, who for the last five years have been working at the subject. The methods of staining living tissues have been much improved of late years. By means of methylene-blue, neutral red, and brilliant Kresyl blue, in solutions of appropriate strengths, the cornea and conjunctiva, both of animals and of man, have been stained during life, so that by means of the slit lamp and corneal microscope their intimate structure can be displayed. The results of the use of this method are here depicted in a series of some 60 coloured drawings. These demonstrate, among other things, a granular structure of the corneal epithelium and endothelium caused by the staining of the living cells—lymphatics, nerves, and nerve-endings—in the conjunctiva and the relationship of these to the vessels. After a subconjunctival injection the lymphatics are seen to be enormously swollen and shaped like a string of beads owing to the valves. Perivascular lymphatics are also demonstrated. The end bulbs (Kolben) of nerves are very well shown. The authors may be congratulated on having initiated a further stage in slit-lamp technique of which their compatriot, Prof. Vogt, has so far been the chief exponent.

THE HARLEY STREET CALENDAR.

By H. H. BASHFORD. London: Constable and Co., Ltd. 1929. Pp. 272. 7*s*. 6*d*.

IN a modest foreword Dr. Bashford speaks of his "attempt to frame in the setting of their times a few typical figures of English-speaking medicine." He has certainly succeeded in supplying admirable short accounts of the lives of some of the most celebrated British doctors. He writes pleasantly and easily of Gilbert the Englishman, John of Gaddesden, Thomas Linacre, William Harvey, Thomas Sydenham, Hans Sloane, John Hunter, Edward Jenner, James Young Simpson, Joseph Lister, and William Osler; and it is clear that each study is based on a sound historical background. From a chronological point of view the subjects of the essays cover the period between the twelfth and the twentieth centuries. Each chapter supplies a happy blending of personal details of biography, with the flavour of the times in which these famous men lived and worked, and the result is a fascinating book which is not easily put down unfinished.

THE SCIENTIFIC EXAMINATION OF PICTURES.

By Dr. A. MARTIN DE WILD. Translated from the Dutch by L. C. JACKSON, M.Sc., Ph.D. Leiden. London: G. Bell and Sons, Ltd. 1929. Pp. 106. 15*s*.

THIS book contains a description of an investigation of pigments used by the Dutch and Flemish masters from the fifteenth century onwards. The contents form the result of much research directed towards the determination of whether a particular picture is genuine or not, and the author claims that certain elaborate methods of investigation will give a definite answer in a large proportion of cases to difficult questions of attribution. Important conclusions can be drawn with certainty from the dates of the discovery of various pigments, as is indicated in a foreword by Dr. F. E. Scheffer, professor of inorganic chemistry at the Technical University of Delft. But it is confessed that to obtain trustworthy results it has been necessary to experiment on pictures, as controls, whose origin was above suspicion. The author asserts that the damage thus done by investigation is so infinitesimal as to be undiscoverable even by the experimenter when once his eye has been removed from the spot where the necessary scratch or puncture has been inflicted, while he describes at full length the elaborate technique from which deductions can be arrived at after analysis of these minute fragments of paint. Similarly, radiology can be made to play a part in detection. The costume of the mediæval doctor has often appealed to painters as of great assistance, and there are many portraits of historic physicians and chirurgeons to which the names of famous old masters are appended when both the painter and the person painted are really doubtful. A new terror will therefore be introduced into the life of many curators if the sticklers for accuracy should demand the use of X rays and test-tubes for the verification of catalogues. Diagnosis is an admirable art, but it is a fundamental clinical maxim that the subject should not be submitted to over-examination.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 2, 1929.

THE RENAISSANCE OF GENERAL PRACTICE.

WHETHER we like it or not, the centre of gravity of medicine is shifting from the home to the hospital and clinic. The first result of this is that the profession will be unable to go on doing its hospital work for nothing and will increasingly demand payment for services rendered in institutions; the second result is a narrowing of the confines of general practice which will ultimately destroy the efficiency of all who are isolated from hospitals. The problem of payment for institutional treatment is being solved on orderly lines in the course of social evolution, but the problem of the private practitioner's isolation presents itself urgently in connexion with the Local Government Act which will come into force in April. It may not be strictly true to say, with one of the speakers at last week's Panel Conference, that this Act will provide hospitals for everybody, from duke to dustman, but it will certainly set free a very large number of beds to meet the public demand. This will have the effect of popularising hospitals still further, and if no attempt is made to bring the general practitioner into their working it will separate him yet more widely from truly general practice. If the family doctor is to look after nothing but minor complaints, if he is to surrender his patient during every illness, if he is to be kept out of the multifarious activities of the public health service, if he is to have no access to special means of investigation and treatment, then he stands little chance of being a good doctor. While very many have these facilities at cottage hospitals and elsewhere, and make good use of them, the majority of medical men are in no direct relation with hospitals. If local authorities choose the easy course and indiscriminately staff all their institutions with whole-time officers, the present opportunity of a renaissance of general practice will be lost—and such an opportunity may not occur again. It was on some such conclusion that the Panel Conference passed a resolution requiring an institutional position for the family practitioner.

But, of course, it is one thing to pass resolutions and quite another to translate them into action. What sort of hospital is the general practitioner to enter, and what is he to do when he gets there? Clearly no one would care to thrust him into the organisation of the great voluntary hospitals, and it may be asked whether he has in fact a function in anything bigger than a cottage hospital. If he has no place in the large institutions under natural conditions, ought we to provide an artificial environment in which he will thrive? Is the family doctor engaged on work of such national importance that he should be protected; or is free trade in medicine ultimately best for consumer and profession alike? These questions will have all sorts of answers in different minds, in different parts of the country, and in different circumstances. Even now we can find object-lessons in plenty if we look for them. There are already poor-law institutions which have pay-beds to which patients can be admitted under the care of their own doctor. There are others in which medical men are encouraged to follow their cases to the wards and consult with the superintendent and his assistants. Others again have coöpted local medical men as members of their consulting staffs; but here they are usually invited in some specialist capacity, and begin to lose their status as genuine general practitioners. This is the process which has given specialists to most of the big provincial towns during the past two generations, for where a man is attached to a large hospital as physician or surgeon he is apt insensibly to become a consultant—or at any rate a "consultoid." In this increasing specialisation some people see the salvation of the practitioner, but Lord MOYNIHAN (as is reported on p. 957) would have us beware of the tendency to put local doctors on the staffs of the new municipal hospitals unless they have the proper credentials. The hope of the medical profession, he says, is that the standards and ideals of the voluntary hospitals will guide and inspire the work of the old poor-law institutions under their new control, and it must be recognised that physicians and surgeons required for them do not at present exist. Lord MOYNIHAN evidently visualises a municipal hospital as developing gradually on the lines of the teaching hospitals, with no one on the staff who is not an F.R.C.S. or M.R.C.P. He agrees, however, that general practitioners should be given greater facilities for keeping in touch with their patients, and for following the practice of the hospitals so as to keep abreast of advances in medicine.

Possibly we shall have to admit that such facilities are the most that can be hoped for. Perhaps it is true that general practitioners when they demand admission to hospitals are asking for the lost opportunities of their youth, which they can never have again. We must beware of thinking that it does not matter what happens to the practitioner of to-day so long as we look after the training and chances of the practitioner of to-morrow. And we are not persuaded that it is impossible at once to bring the family doctor into much closer touch with hospital work. If the so-called salt of the profession is losing its savour, we do not believe it is beyond the wit of man to re-salt it.

LATENT FRACTURES OF THE SPINE.

UNDER this title Médecin-Commandant M. CLAVELIN[1] writes of those minor or overlooked injuries of the vertebræ which have figured more largely in medical literature since the war. The number of violent injuries from explosions, falls of earth, and accidents to vehicles during the war, and the automobile accidents after it, have made this subject more important than it was even 20 years ago, while improvements in radiographic apparatus and technique have made early diagnosis possible where previously it was impracticable. No doubt it would be well if, as CLAVELIN suggests, we were to banish from our case-books such vague terms as contusion of the spine and muscular strain, for nearly always what is called contusion is really fracture, and muscular strain, however slight, involves rupture

[1] Arch. de Méd. et de Pharm. Milit., 1929, xc., 139.

of muscle-fibres, which may be extensive enough to impair the muscular support of the spinal column. Not only may the bodies of the vertebræ be concerned in a crush fracture caused by excessive flexion, but any of the apophyses may suffer, and CLAVELIN has found that these latter lesions are accompanied by more acute and more localised pain than are compression and deformation of a vertebral body. The term "compression fracture" is perhaps not very happily chosen, for by fracture of a bone we usually understand a solution of continuity involving the division of one bone into two or more fragments, whereas a crush fracture of a vertebra consists not in a tearing apart but in a squeezing together of cancellous tissue and consequent alteration of shape of the bone affected. Any regions of the spine may be the site of a compression fracture, but the lumbar region is far more often affected than the cervical, and the dorsal least of all.

Unlike the classical fractures or fracture-dislocations of the spine, with their obvious and grave clinical signs and symptoms, these minor injuries have often been overlooked, especially when other and more grave injuries of the limbs and trunk have absorbed the attention of the surgeon immediately after the injury. But when these have been successfully treated disability may still remain, together with pain referable to the spinal column, which on careful radiographic examination may be found to be due to overlooked injuries. In other cases the original accident may have been comparatively slight; the symptoms may have been attributed to sprain and treated by too short a period of rest; after which instead of disappearing they may become worse, whereupon a more careful and more skilful radiographic examination reveals a definite lesion of bone. CLAVELIN has confined his observations to cases which he has seen for himself or which have been recorded in France. But the subject has not been neglected elsewhere and we may direct attention of students to the work of R. B. OSGOOD on compression fractures and to the discussion on minor injuries of the vertebræ which took place at a combined meeting of the Surgical and War Sections of the Royal Society of Medicine last January. On that occasion Group-Captain H. V. WELLS[2] described typical cases of "latent" fracture—to use CLAVELIN'S term—in which at or soon after the time of injury radiography showed nothing wrong with the spine, but which months later developed symptoms, and radiograms subsequently showed deformity of bone. The surgeons who spoke at that meeting for the most part thought that such deformity was due to morbid processes in the nature of an osteitis—coming on after the first radiogram was taken—a view which was stoutly challenged by at least one radiologist, who refused to accept it until more exact radiographic evidence was forthcoming. CLAVELIN, while discussing late-coming symptoms in minor injuries, does not deal with this syndrome, although he shows among the 24 figures which illustrate his paper, two of "spondylose traumatique" which bear evidence of arthritis deformans of the spine following on injury. However divergent the views held by various clinical observers, there is an unanimous belief in the necessity of skilful radiography (always in two planes), consequent early diagnosis, and early and adequate treatment. This last may be summed up in the Hiltonian prescriptions of physiological rest; but after this rest care must be taken to secure mobility if necessary by breaking down adhesions.

[2] THE LANCET, 1929, i., 335.

THE POSITION OF PSYCHO-ANALYSIS.

AN attempt to place in perspective a book on "The Trauma of Birth," reviewed elsewhere in this issue, induces some reflections on the present position of psycho-analysis. The arguments of the author, as he himself states, are only possible and intelligible on the basis of the whole body of knowledge that has been gained psycho-analytically about the construction and functioning of our own psychical instrument. The assumption involved invites a general survey of the relation of psycho-analysis and medicine, since either this body of knowledge is a delusion, and books like this are waste paper, or we are ignoring a most important advance in the pathology and therapy of some of the commonest ills of mankind.

Freud's first announcements of his discoveries, over 30 years ago, were received with blank incredulity, and years passed before his ideas began to receive attention, even from a few. Now they are being to a greater or less degree confirmed by an ever-increasing number of practical workers, and they influence our conceptions of neurotic disorders more than is generally recognised. Recently a committee of the British Medical Association was appointed to inquire whether the practice of the specialty is immoral or dangerous; the fact that propriety and usefulness of this sort had been publicly questioned justified this unique inquiry, which resulted in the acquittal of psycho-analysts of evil practice. What this new method of approach can offer to medicine is, however, a question we seem in no hurry to consider. The fact that, if confirmed, it will mark an epoch in the growth of knowledge escapes the observation of many who may thus be losing the opportunity of watching history in the making. An active psycho-analytical organisation certainly coördinates work in different countries, and has published a large mass of observations, theories, and speculations, resulting from work that is evidently laborious and painstaking; but this organisation stands aloof from the general body of medical or scientific thought, and a glance at the history of the psycho-analytic movement suggests that in this aloofness Otto Rank might see the results of a difficult delivery and a stormy childhood. As a possible bridge across the gap we find individual practitioners who make use of analytical teachings in the treatment of psycho-neurotic patients, but these seem to receive little academic encouragement and are denied, or deny for themselves, the title of psycho-analyst. The situation is without precedent. In the controversies associated with the names of Darwin and Lister the opponents came to grips in the scientific arena and reached conclusions. Although the acceptance of evolutionary theory was delayed by emotional opposition, and finally became a matter of gradual absorption, yet in the stormiest times its exponents were not driven from the scientific fold. The unanswerable virulence that expressed itself in our journals some twelve years ago is happily a thing of the past. Yet in London to-day few young men on the threshold of an academic career in medicine would dare to give open adherence to psycho-analytical principles, or even to investigate them practically in a scientific spirit.

For this state of affairs it is futile to ascribe blame in any particular quarter. The historian sees in such situations the play of forces inherent to human nature, and the cases of Darwin and Freud are alike if only because in each of them the world's peace of mind was apparently in danger and man's satisfaction with himself was shaken. The intrinsic qualities of the processes revealed by analysis are held by his followers to be responsible for the determined rejection of Freud's discoveries, and they rightly plead that to make them answerable for these qualities is the negation of science. We may eventually come to acknowledge a debt to those workers who, as we have seen, are content for the present to be isolated from the general current of medical thought.

By that time we shall have answered the questions that arise from the reading of "The Trauma of Birth"—do these things happen, and if so, what is their import to medicine? The nature of the answer to these questions cannot be prophesied. The trouble of investigating psychology from this new aspect should not be minimised or attributed only to its unwelcome message; its exponents are still unable to agree on even the fundamental tenets of the faith. Few of them follow Freud in all his teachings, and it is likely that the pattern ultimately to be woven will be made from many designs which at present seem to clash with one another. Our plea is that in the medical schools some equipment should be given to the student to enable him to follow the developments of Freud's ideas, and eventually to assimilate those which will help him to understand his patients.

Annotations.

"Ne quid nimis."

PRINCIPLES OF PUBLIC HEALTH DEVELOPMENT.

AN ordinary industry, as Dr. J. J. Buchan pointed out in his presidential address to the Society of Medical Officers of Health on Friday last, is constantly reviewing its organisation and making any outlay necessary to improve efficiency, maintain position, increase profits, and diminish expenses. Yet, although the only real capital of the State is the health of its people, this vigorous progressive acumen is seldom seen in the department of public health. The public health is a good business proposition, for it has done more in the past to increase capital and diminish expenses than the most successful industrial venture on record. Despite a chaos of patchwork legislation and great inherent difficulties, the rate of progress in recent years calls, as Dr. Buchan pointed out, for some satisfaction, but he laid down certain principles for the future which should ensure a continuance and amplification of the success already attained. We are still far short of making full use of the knowledge we already have and still more wanting in facilities for research. Every up-to-date industrial concern maintains a research institute; surely the State should not leave the great bulk of research work in health to the self-sacrificing labour of the few and the vicarious generosity of the well-intentioned. Dr. Buchan's first principle was that the protection and improvement of the health of the people should be regarded by the State as an end worthy in itself. Too often in the past public health has crept in behind the skirts of some other work, as, for instance, the public health services under the poor-law, which were no more than a side-line in the relief of destitution. This has been set right, but similar examples still abound, notably in factory legislation. "Despite a succession of statutes and a multitude of orders," said Dr. Buchan, "factory legislation has continuously failed to meet fully the real health needs of the whole body of the employed . . . only some six millions out of sixteen and a half millions of occupied persons come under the Factory Act." He refused, however, to regard the health of the worker as a labour problem to be solved by codification of industrial laws; the health problem is fundamental and the health of the employed must be brought under the Ministry of Health and not under the Home Office. His second principle was that the people cannot be sectionalised; evil conditions in one class, at one age, or in one set of circumstances have comparable evil conditions in very different departments. Health in pregnancy, for instance, must be viewed in relationship to the conditions before and after pregnancy, and the more deeply we inquire into the health of school-children the further do we travel from the school. The third principle was that a central unification and reorganisation of health effort is not in itself sufficient unless it is accompanied by a similar unification and reorganisation at the points of administration. Health work in this country has always suffered, he maintained, from a lack of well-ordered and well-arranged local government areas. The State should permit no consideration of local history, pride, prejudice, or precedent to stand in the way of securing competent machinery of local administration. His final principle was the complete freedom of expression of the professional health officer within his own sphere. To be of any service he must be absolutely free to express his opinion on any matter of health, whether it be lead poisoning among painters or the exclusion of school contacts in infectious disease. Any control of this expression of opinion must come from within the public health service itself, and not from administrators who have not the knowledge to control opinion on such subjects. "In no other kind of public activity," concluded Dr. Buchan, "is there such a solidarity of interest for all the people, and in none is their coöperation and help more desirable." This coöperation depends almost entirely upon the better education of the great mass of the people in matters of health, and for this education the public health officer must rely to a very large extent on the general practitioner, who has it in his power to take the knowledge of hygienic principles into the homes and hearts of the people.

PERNICIOUS ANÆMIA WHICH RESISTS LIVER TREATMENT.

ARE there any cases of pernicious anæmia which will not respond to liver? The general experience both here and in America seems to be that there are not; but Dr. P. Emil-Weil now publishes[1] three cases diagnosed as pernicious anæmia which got no better under modern treatment. The patients all showed severe anæmia with a high colour-index and some leucopenia; in one the spleen is said to have been enlarged. Liver was given, both as whole gland and in the form of extracts; this treatment was supplemented by frequent transfusions of blood: yet no improvement followed, and all the patients died after illnesses of some months. The question naturally arises whether the diagnosis was correct. We have at present three criteria of pernicious anæmia—namely, achlorhydria, hæmolysis, and an increase in the mean size of the red cells. A high colour-index is indirect evidence of the last of these, and it was observed in Emil-Weil's three cases. But he gives no information about the other two signs, and failing this it would be rash to amend the aphorism that anæmia which will not respond to liver is not pernicious anæmia.

JUVENILE RHEUMATISM IN MARYLEBONE.

THE St. Marylebone Children's Rheumatism Supervisory Centre was instituted at the General Dispensary in 1926, and has now published its first report with an analysis of the first 100 cases. An attempt is being made to combine into a simultaneous objective a clinical inquiry into the prevention of heart disease and a laboratory investigation into the nature of the rheumatism of childhood. The clothing was good in 71 per cent., fair in 23 per cent., and bad in 6 per cent. The family income was adequate in 79 and inadequate in 21. The housing was good in 23, overcrowded in 32, damp in 8 only, insanitary in 11, and inadequately light in 9. The clinical analysis shows the family and personal history, age, previous infections, early symptoms and state of nutrition, teeth, and blood pressure. The biochemical work includes hæmatological and chemical examination of blood, urine, and fæces, and certain abnormalities have been found with some consistency. In 75 of the children focal sepsis could be excluded, and the

[1] Le Sang, 1929, iii., 426.

constitutional findings in the remaining 25 provided presumptive evidence of a rheumatic diathesis with a secondary superadded septic factor. Cardiac involvement was found in all the children (60) who exhibited a lowered alkaline reserve. Cases which showed a deviation of the acid-base balance to the alkaline side were eventually classified as non-rheumatic, both on clinical and on biochemical grounds. Phosphate and sulphate excretion was abnormal in more than half the cases, and the aromatic sulphate fraction was increased in 30. Calcium excretion was low in 65, and 70 showed an abnormal carbon-nitrogen ratio. No consistent variations from normal were found in the fæces except for an excessive loss of calcium in 40. Some of these findings are suggestive, but the director, Dr. Halls Dally, rightly declines to draw conclusions at this early stage of the work.

DUTCH MENTAL HOSPITALS.

Of the subcommittees formed by the Royal Medico-Psychological Association there is one which organises study tours and post-graduate education in mental disorder. Just a year ago a party visited the mental hospitals of Holland, and an account of the tour has now been published in pamphlet form.[1] The Dutch Lunacy Law differs from our own in a few respects. Until 1906 a patient could only be received into a mental institution on the certificate of an independent medical practitioner, and the petition of a relative or of the Public Prosecutor in lieu. Any building where more than two insane persons were treated was legally an asylum, but in 1906 the law was amended so that patients could be received in a university clinic without labelling the building as an asylum. Thus patients can now be taken into these institutions or into separate blocks in mental hospitals, called ' open wards," without the formality of certification or periodic statutory reports. The visitors last year found that 20 per cent. of the inmates of mental wards had been admitted without any kind of certification. Many of them were obviously non-volitional, and isolation, seclusion, or continuous bath treatment were ordered for them, irrespective of the basis of admission. There is no legal provision for single care or for the disposal of the income of well-to-do patients. One doctor to every 175 patients is required in new hospitals. The medical director is the chief officer, except in Roman Catholic institutions, where the Prior exercises general control. The State issues a diploma in mental nursing after three years' training and examination. The proportion of nurses to patients is about double that found in Britain, but Holland experiences the same difficulty as we do in securing suitable applicants. Assistant nurses are paid from £45 to £60, and nurses holding the diploma £146 to £160 per annum, and the working week varies from 48 to 60 hours. Female nursing of male patients is commoner there than in this country.

Perhaps the most striking feature of the Dutch mental hospital is the application of Dr. Simon's occupational therapy, which was devised with a particular view to improving the condition of restless, destructive, or filthy patients in turbulent wards. It is based on pedagogic principles. Four or five patients are put together in a little alcove, and stillness and silence are enjoined. When a new patient joins the group the atmosphere of quiet industry has a strong influence. Any patient who becomes noisy is removed to a single room for a period varying from ten minutes to an hour, as a penalty. The work on which the patients are employed includes raffia, tearing rags or coir, untying knots in string, rolling string into balls, envelope-making, cleaning letters off three-ply wood tea-chests, rudimentary knitting, rug- and mat-making, tobacco-leaf stripping, brick trimming, tile-making, and cleaning labels. The articles made by more advanced patients display much ingenuity and activity with every variety of handicraft, but even the least intelligent can produce wire paper clips or firelighters made of rolled shavings. Weekly payments are made in recognition of good behaviour and regular work, and to promote self-esteem. On July 1st, 1928—a day taken at random—1273 out of 1420 patients at Santpoort were doing some kind of work; of the remainder, 122 were too old or ill, and only 25 were unoccupied for mental reasons. Dr. van der Scheer, of Santpoort, maintains that turbulent behaviour is not a part of the psychosis, but arises secondarily from loss of educational and environmental influences; he believes that noisy wards will follow mechanical restraint and dark cells into oblivion. Padded rooms are unknown in Holland, their place being taken by continuous baths in which the patient is fixed by a wooden or canvas lid with a padded opening for the neck. Even this restraint is now very little used. A method frequently employed for controlling acutely excited or depressed patients is Kläsi's continuous sleep. Somnifen is given orally or by intramuscular injection twice a day, and the patient is kept absolutely quiet. Manic-depressives may be kept under the drug for a fortnight; dementia præcox patients for a few days. As the somnolence begins to pass off the patient is exercised by two nurses and started on manual occupation, so that by the time he is fully awake again he finds himself engaged in some quiet employment. Sometimes opium is given instead of somnifen.

There is an interesting after-care service in Rotterdam. A special practitioner living in the town is selected as outdoor service doctor; he attends the hospital weekly for a whole day, and so is well acquainted with hospital routine and problems. He gets to know the patients before they leave, and his services are offered to them for after-care and seldom refused. He inspects the environment to which they are returning, and thereafter visits as often as seems desirable. A consulting clinic has arisen out of this service but was not the primary element of it; the home visitation is stressed as the most important and illuminating part of after-care. The service is in close contact with the local welfare society. Since its inauguration three years ago the insanity figures for Rotterdam have decreased, although the population has soared, and other cities in Holland show no corresponding decrease. Thoroughness was the quality in all this work which consistently impressed the visitors; therapeutic measures and laboratory research alike are pursued in Holland with energy and application.

The committee is doing a great service to European psychiatry in linking up the work of different countries by these study tours, and it was a happy corollary of the visit to publish this account for those who were unable to take part.

[1] An Account of a Tour of Dutch Mental Hospitals and Clinics. By A. E. Evans, M.B. Adlard and Son, Ltd., 21, Hart-street, W.C. 1929. Pp. 18. 1s.

SCLEROSING INJECTIONS IN THE TREATMENT OF HERNIA.

Sclerosing injections in the treatment of varicose veins have become deservedly popular; their effective superiority to excision has been proved beyond dispute. It is not surprising therefore that investigators have sought to adapt similar methods to the treatment of other conditions, such as inguinal hernia. It is curious to what extent the sequence of events corresponds. Injections for the cure of varicose veins were employed about the middle of last century, but were discarded as dangerous largely because the fluids used were unsuitable. Now Dr. J. S. K. Hall[1] reminds us that Velpeau, in 1835, was the first to think of an injection method for the cure of hernia, and actually put his plan into practice, using an iodine solution as the fluid. Several other surgeons followed his lead and good results were recorded. For some reason, probably because the

[1] Medical Journal and Record, 1929, cxxx., 81.

fluids used were too irritating, the method fell into disuse and, according to Dr. Hall, has only been resuscitated by the work of Dr. Pina Mestre, a Spanish physician, who published his experiences in 1927. He and his associates claim to have treated more than 8000 cases of hernia. Almost without exception the inguinal canal was obliterated in 10–15 days. The success recorded appears to be due to the discovery of a non-irritating and effective liquid. Like that used in the treatment of varicose veins, the method is an ambulatory one. The injection is composed of a mixture of the alcoholic extracts of several astringent plants, of which the most important seems to be rhatany. The hernia is first reduced and an injection made every day in the region of the external abdominal ring. An indurated mass appears in a day or two which effectively blocks the inguinal canal. Precise details of the formula are not given by Dr. Hall, nor is it clear whether the injection is made within the lumen of the sac or around it. Various objections are likely to arise in the mind of a critical surgeon reading this account. He may well ask what will happen if inadvertently the injection is made intraperitoneally, whether the coils of intestine in the neighbourhood of the internal ring become adherent in this situation, whether or not thrombosis may sometimes be caused in the pampiniform plexus, and whether, in infants, to whom the method is said to be applicable, any damage is done to the delicate vas deferens. None of these questions is touched upon, but it is scarcely likely that 8000 patients would have submitted to the treatment had complications been frequent. The method, whilst in principle it lacks precision and does not therefore attract the surgeon, appears worthy of consideration; and further investigation is desirable because any effective ambulatory treatment of this common abnormality would be a boon to countless sufferers.

LATER BREAKFASTS IN HOSPITALS.

EVERY profession has its critics amongst what it chooses to call the lay public, and close association with any profession is usually sufficient to show that there are very good reasons behind what the outsider is often inclined to consider an abuse. It has long been a matter of astonishment and indignation amongst a section of the public that the sick, when they are admitted to a hospital or nursing home, find themselves roused from their sleep many hours before the time at which they would be woken up in their own homes. Doctors and nurses know that the cleaning of the wards and the washing of many patients takes a considerable time, that enemata and douchings and dressings often have to be carried out at an early hour, that four-hourly medicines must be given by the clock, and that in fact the hours before 10 A.M. are extremely busy ones for nurses, whose duty it is to have their patients suitably prepared for the visit of the surgeon or physician. To harmonise these interests with the rest which is often the primary therapeutic need of the patient is almost an impossible task. The layman who is inclined to grumble when two nurses have to be installed into his house to look after a sick patient is often slow to comprehend that if all these morning duties were to be piled upon one nurse she would be quickly worn out. Twelve hours is the utmost a nurse can be asked to work, but in private it can be arranged for the change of duty to take place at the hour, be it 8, 9, or even 10, when an equitable distribution of hard work can be made. But in hospital such adjustments are not so easy, since the needs of individual patients vary. It is therefore a satisfaction to learn that the authorities of the Middlesex Hospital have been able to reorganise the work of the hospital on lines which will allow the patients to rest undisturbed until 7 A.M., when breakfast will be served. We understand that in order to introduce this reform—in which the matron, sisters, and nursing staff are eagerly and loyally coöperating—it has been necessary to bring the day nursing staff on duty at an earlier hour and that the visits of the resident and other medical officers and presumably of the students are to be postponed until after 10 A.M. The change is introduced at the moment when the new west wing of the hospital is being occupied, and the authorities believe that their example will be followed by hospitals throughout Great Britain. As much depends upon the interpretation of such a rule as upon its actual wording. If such urgent treatment as is required in the early hours for individual patients is administered without clatter, if ward maids are excluded till after breakfast, and the routine cleaning of floor and lockers is also postponed, the concession will result in securing an extra hour of rest to the patients, possibly even more. In many hospitals it is the custom to serve breakfast at 6 A.M., the active patients being provided with hot water only after the meal, while the helpless ones are washed before it; if there are many of these the process must be lengthy and some at least must be roused uncomfortably early. Any attempt to make the hospital more like the home deserves praise. A later breakfast is one way. Another is to sacrifice the appearance of the ward to the idiosyncrasies of the patient; to allow him to smoke and receive visitors during convalescence, and to accept from his friends fruit and other delicacies which the hospital cannot provide; and finally, to ensure that his friends can obtain not only news of his progress but messages of his wants on the telephone. The Middlesex Hospital is one of those with a reputation for consideration as well as good treatment, and has given new proof that this reputation is deserved.

CHLOROTIC ANÆMIA IN THE MIDDLE-AGED.

A LOW colour-index of the blood associated with virginity in young females used to be regarded as an indication for the administration of iron in large doses or the encouragement of early marriage, either remedy being effective. Chlorosis is now so rarely seen that there must be those among students and medical men of fairly recent standing who wonder whether the whole syndrome of green sickness was not a figment of the imagination of the earlier clinicians. No one, however, who was walking the hospitals 20 years ago will deny that the condition existed. The reasons for its disappearance afford much subject for speculation; increase in the therapeutic use of iron and changes in the dress and normal activities, customs, and pursuits of girls have both been suggested. While typical chlorosis has practically disappeared, however, it is becoming evident that there are other types of anæmia associated with a low colour-index still to be reckoned with. A well-recognised type is that associated with hypofunction of the thyroid; a further type occurring in adult females leading a normal sexual life has been closely studied by Dr. Grieg Altschuller[1] at the Medical Clinic of the University of Prague. In the particular case described by this author there was moderate diminution of the red cells with profound depression of the hæmoglobin percentage and consequently a very low colour-index. The basal metabolism rate was lowered, but the condition made no response to thyroid medication and could therefore be removed from the thyreogenic class. The exhibition of reduced iron in large doses brought about a speedy improvement in the blood picture; when the iron was dropped the anæmia returned, but was again abolished by its administration. In fact, the condition behaved like a case of chlorosis, but differed from it in occurring in a widowed woman of 45, who had borne several children, and in the absence of the peculiar aspect of chlorosis. In considering the case Altschuller points out that hæmatopoiesis may be considered under three heads—the production of the young red cells,

[1] Altschuller, Grieg: Sur la Pathogénie de la Anémie hypochrome, Acta Medica Scandinavica, 1929, lxx., 110–119.

their saturation with hæmoglobin, and their liberation into the blood stream. In cases of the sort described he sees a disturbance of the second step, which is also that affected in the chlorotic diathesis. The fact that in Altschuller's own case the subjective symptoms of headaches, lassitude, and fatigue disappeared within a few days after the exhibition of iron, before any change had become detectable in the blood picture, he takes as confirmation of the view of Morawitz that the action of iron is not confined to the blood-forming system but extends to other organs, including those of internal secretion.

SEWAGE ANALYSIS.

THE Committee appointed to discuss the question of technique in carrying out chemical analyses of sewage and sewage effluents has now brought in its report,[1] which is designed to assist those who are engaged in testing the purity of effluents and of rivers. Two sentences in the report sum up well the two points of view held by analysts on the question of standard methods:—

"A reasonable measure of uniformity is desirable in the methods to be followed in testing the quality of sewage liquors, before and after their purification, and also in the statement of analytical results. Without this it is difficult to be assured that the same standards are being applied or that really comparable results are being obtained. Reasonable uniformity is essential if a common language is to be spoken."

"This search for some measure of uniformity is not intended in any way as a break on initiative, upon which progress in methods depends. It should not, however, be difficult to secure both objects, reasonable uniformity and full initiative."

When the thing to be determined is a definite chemical entity the real chemist will no doubt prefer to choose his method to suit the case; it is only the man who is afraid to exercise his judgment who will willingly let it be bound. In the case of sewage, however, some measure of standardisation, both of methods of analysis and of setting out the results obtained, is desirable. For sewage is a very complex mixture of unstable compounds, containing within itself living agents which continually work changes and modify its composition from hour to hour. Ammonia, chlorine (or rather chlor-ions), and total nitrogen are well-defined chemical individuals; yet in sewage and effluents ammonia is readily formed by the very reagents or processes used, through hydrolysis of amines and the like, while the total nitrogen content of a liquid containing 0·01 per cent. or less is not determinable with the same ease as it is in, say, a sample of bone-meal. The conception of "albuminoid ammonia" which we owe to that brilliant but erratic genius Alfred Wanklyn is another useful label—not to be dignified with the name of entity—which is only valuable if it is applied in the same rigid manner by all whose results are to be compared. This is in brief the case for standard methods of sewage analysis.

The personnel of the Committee and the fact that Dr. George McGowan was mainly responsible for details is a guarantee that the methods are sound. Criticism, if any, will be directed to a degree of precision which may be unnecessarily high and involve an undue expenditure of time. The report opens with the question of sampling, for the most careful analysis in the world would have no value, except as a laboratory exercise, unless made on a sample which really represents something definite. A consideration of the way in which sewage is produced, the daily incidence of the morning wash or bath, other matters of personal hygiene, washing-up, street watering, and the regular operations of industry, the weekly round of washing days, washing-down after brewing and similar intermittent operations, with irregularities of rainfall and secular changes due to the seasons—all these affect the composition of sewage. No shorter interval than a day can be regarded as yielding a representative sample, and this day should be one on which there is little or no rain. Samples should, whenever possible, be analysed within 24 hours of collection, the time elapsing being stated. Results of analysing the same sample one, two, three, and six days after collection are given in an appendix; although the total nitrogen remained constant, the proportion of ammonia went up at the expense of organic nitrogen—in other words, chemical simplification was going on. In the illustration given, however, the variations of solid content suggest that the samples were not at the beginning quite identical, as the non-volatile matter varied; calcium carbonate may have separated out owing to the increasing alkalinity of the liquid. The increase of oxygen immediately absorbed from permanganate showed that unstable organic matter was increasing, while a decrease of that absorbed in four hours seems to indicate that oxidation had gone on, reducing the total oxidisable matter. Turning to the methods themselves, it may be remarked that Crum's mercury-sulphuric acid process for nitrates and nitrites has the advantage of being positive and specific, although rather troublesome; it is useful in cases where the presence of these compounds is a priori improbable and it is desired to verify the findings of a differential method. The mysterious entity known as "X nitrogen" is given its proper significance, which is merely the difference between the real organic nitrogen and that indefinite portion of it which is yielded by the Wanklyn process as "albuminoid nitrogen." The Committee recommends that analyses should, as a rule, include estimations of suspended matter, chlorides, free saline and albuminoid ammonia, oxygen absorbed from an acid solution of permanganate, and, in addition, in the case of purified effluents, nitrates, nitrites, and the Royal Commission test for oxygen taken up from aerated tap water. It is important to distinguish between the last-named test and the permanganate test for oxygen absorbed, the results of which bear no simple relationship to the Royal Commission test.

The report should prove of value not only to analysts but to medical officers of health, engineers, managers of sewage disposal works, and other officials of local authorities on whom falls the burden of sewage disposal. What this burden amounts to is well indicated in Mr. A. J. Martin's recent Chadwick lectures which are summarised on p. 961.

[1] Ministry of Health: Methods of Chemical Analysis as Applied to Sewage and Sewage Effluents. H.M. Stationery Office. 2*s*. 6*d*.

INFANTILE MORTALITY IN KENSINGTON.

To people who do not live there the name of Kensington suggests the last resting-place of smug respectability, the essence of organised drapery, beautiful gardens, or dismal slums. Few envisage the borough as a whole. It is in fact a long, narrow slice of the County of London, shaped like the popular, if unfashionable, Russian boot. Its heel extends south of the ol dexhibition grounds at Earl's Court, to take in the West London (Brompton) cemetery. Its pointed toe touches Piccadilly at Knightsbridge, and its rucked leg includes no part of Kensington Gardens, but, on the other hand, many of the squares, such as Pembridge-square, usually associated with Bayswater. The whole of Holland Park and Campden Hill, and the more dilapidated areas of Notting Hill are included in the borough, its northern boundary at the top of the boot being another cemetery, Kensal Rise. Even a casual survey of this medley of social conditions shows how perplexing would be the problem of investigating any statistical anomaly in the public health of the borough if undertaken by one unfamiliar with the distinctions which fashion has drawn between adjoining districts. It is therefore from within the borough that we must seek light. Fortunately, a group of the doctors practising in the borough are concerning themselves with the welfare of the community, as well as with the health of individuals. The North Kensington Medical Society, which has already shown signs of an active interest

in the medico-social questions of the day, met on Oct. 8th at 35, Colville-road, W., to discuss with each other, and with Dr. J. Fenton, medical officer of health, the cause of the large increase in infantile mortality in 1928. The population of Kensington is 176,000, and the infantile mortality-rate rose from 61 in 1926 to 67 in 1927, and to 85 in 1928; the borough thus shares with Paddington the ignominy of losing 18 more infants under a year old for every 1000 births than the average London district.

The reasons suggested by the speakers for this high mortality varied widely. Dr. E. M. Reece attributed it largely to overcrowding, poverty, and to lack of open spaces. Dr. A. K. Gibson and Dr. A. K. Barrett thought that maternal care must be at fault, and Dr. M. Hellier agreed that many of the mothers went out to work long before the child was fit to be left. Dr. W. C. Robinson spoke of the possible correlation between high infantile mortality and large families. Dr. A. B. Pastel proposed the separation of children suffering from tuberculosis, and the provision of an increased number of qualified midwives, as remedies which might be efficacious. Dr. D. M. Scrimgeour, Dr. R. H. Draper, and Dr. E. Lowlor emphasised the special dangers to which illegitimate and unwanted children were exposed, while Dr. M. W. Geffen had found illegitimate children to be well cared for and healthy. Dr. Christine Murrell and Dr. H. Sanguinetti believed that congenital syphilis accounted for more deaths than was generally admitted, but Dr. G. Slot agreed with Dr. Fenton that the syphilitic mother was rare. Dr. Fenton pointed out that there seemed to be no advantage from the point of view of infantile mortality in a rich population; moreover, since 32·8 per cent. of the deaths took place during the first four weeks of life housing conditions could hardly be incriminated. The closure of basements for residential purposes had its dangers, since unoccupied basements might collect vermin, and become more of a menace than occupied ones. Dr. Fenton concluded by welcoming the coöperation of doctors practising in his district. The outcome of the discussion was the passing of a resolution deploring the high infant mortality-rate in the borough, and proposing further investigation of deaths under one year of age. To this end it was suggested that three members of the Society should confer with the medical officer of health in order to arrange a scheme, or to make further use of existing methods of inquiry.

MEDICAL SCIENCE IN THE FIFTEENTH CENTURY.

A VOLUME[1] consisting chiefly of special studies of the philosophy of the fifteenth century, based in large measure upon manuscripts and unpublished material, makes it clear that the contributions made to medicine and surgery during the fourteenth and fifteenth centuries have been much undervalued. Disparaging generalisations at the expense of the Middle Ages should now be repeated only by those who refuse to give up any catchword or prejudice that was instilled into their minds in childhood. In the first chapter, which is perhaps the most interesting of all, the author introduces the reader to the scientific and other thought of the fifteenth century and aims at giving him some notion of what has been accomplished and what remains to be done in the way of historical investigation of this period. His own studies are recorded in the following chapters and in the appendix which occupies 109 pages. These concern medicine and the law, astronomy, mathematics, and speculative, moral, natural, and political philosophy. There are ten illustrations of manuscripts and diagrams, and the book contains not only a general index, but also an index of the manuscripts referred to. Publication has been assisted by a grant from the Dunning bequest left to Columbia University for the encouragement of historical studies. The inventiveness of the Middle Ages continued to manifest itself in the fourteenth and fifteenth centuries, and in the opinion of the author printing is about the only invention of this period thus far adequately studied. During the fourteenth century systematic dissection of the human body was practised for purposes of instruction: and advance was made in measures against infection as a source of disease, and long before the close of the fifteenth century mercury salve was used in the treatment of syphilis. The work of Henry de Mandeville reveals him as a pioneer of antiseptic surgery at the beginning of the fourteenth century, but perhaps the most striking instance of surgical achievement cited is a passage from Bartolommeo Fazio's *De viris illustribus* written in 1456. Mention is there made of the Brancas father and son, Sicilian surgeons, of whom the father was a direct forerunner of Gasparo Tagliacozzi, being—

> "the inventor of an admirable and almost incredible process. For he thought out a way to re-form and complete dissected and mutilated noses, and accomplished all this with wonderful art. Moreover, Antony, his son, added not a little to the beautiful invention of his father. For he devised a process by which mutilated lips and ears as well as noses could be repaired. And while the father had cut skin to piece out the nose from the face of the mutilated person, he took it from the arm so that no facial deformity resulted therefrom. And he inserted the remains of the mutilated nose and bound them up so tightly that the mutilated person could not even move his head. After 15 or 20 days he would little by little cut open the bit of flesh that adhered to the nose and re-form it into nostrils with such skill that the eye could scarcely detect where it had been joined on, and all facial deformity was completely removed. He healed many wounds which it seemed that no resource of medical art could heal."

During the fifteenth century, as in more recent times, the relative merits of law and medicine were occasionally the subject of debate. In course of a dispute of this kind Salutari pointed out that whichever profession is the nobler in origin, it is generally recognised that the lawyers occupy a higher social position. Carlo states that they are called lords and their wives are called ladies, whereas medical men are simply designated as masters, a name common to all vile craftsmen, while their wives receive no title whatever. To this Niccolo can only retort that professors of theology, the supreme science, are also called masters, and that the peasant sometimes calls his donkey "Lord." It would be interesting to hear a discussion on this subject 400 years later; the Medico-Legal Society might consider its inclusion in their programme.

[1] Science and Thought in the Fifteenth Century. By Lynn Thorndike. New York: Columbia University Press. 1929. Pp. 387. 24s.

THE MEDICAL REGISTER OF THE IRISH FREE STATE.

"THE Medical Register of Saorstát Éireann" appeared for the first time last week. It is the official register of medical practitioners in the Irish Free State, published by direction of the Medical Registration Council of Soarstát Éireann as ordered by the Medical Practitioners Act, 1927. The volume consists of XXII and 119 pages, and is sold at 10*s*. Besides the Register proper, it has a list of the members of the Registration Council, a copy of the Medical Practitioners Act, 1927, extracts from the Dentists Act, 1928, and tables of the various qualifications which are registrable. The Register contains the names and addresses of 4139 practitioners, of which 4085 were on the Register on the date of its establishment on May 26th, 1928, and 58 were added between that date and Dec. 31st, 1928. Twenty-five names were removed on account of death during that period. The arrangement of the Medical Register follows in its general lines that of the General Medical Register, but contains two additional columns, one to indicate the channel by which admission in the Register has been gained (General Register, Colonial, Foreign or Direct), and one for a serial number. The printing and format of the volume are attractive, and every care appears to have been taken to avoid errors.

The Clinical Interpretation of Aids to Diagnosis.

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I.

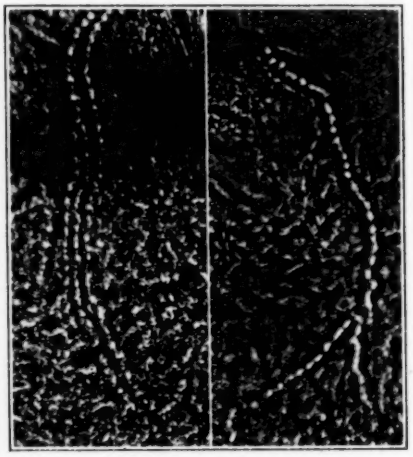
MICROSCOPIC FINDINGS IN DERMATOLOGY.

THE indications for microscopical examinations (excluding histological ones) in dermatology are well defined, and positive results, when obtained, are generally conclusive. The technique and preparation of specimens are simple, but their collection requires some skill, and a knowledge of clinical appearances based on personal experience is indispensable.

Ringworm.

The increasing prevalence of ringworm in its protean manifestations calls for confirmation by the microscope in many doubtful cases, and it is in these, especially, that a sound technique is essential. "Scrapings" in the true sense of the word are almost invariably negative, for the surface epithelium removed in this way is desiccated, and the mycelial elements are quite unrecognisable for the same reason. For a successful demonstration in this disease we must find a vesicle, carefully remove its roof with fine forceps, and if possible, invert it so that the under surface lies immediately under the cover-slip. The interpretation of what is seen in potash preparations of such specimens is by no means always easy. Fat and air globules are doubly refractive, and have often led to error (see Fig. 4.) Too strong a solution of the reagent or too much heat before mounting may produce deformities of cells and tissues easily mistaken, even by those of some experience, for the segmented mycelium of the mycotic group. It has been said that if there is any doubt at all the specimen must be regarded as negative for tinea. The outlines of epithelial cells viewed from above under the 6th objective may deceive the unwary by the relatively high refractile power of their collagen constituent (see Figs. 5 and 6). The error should not arise if the observer bears the possibility in mind, allows sufficient time for the development of a clear field, uses his low-power objective intelligently (most mycelia can be clearly seen with a 1/3 objective), and knows how to manipulate his mirror, sub-stage condenser, and diaphragm to the best possible advantage. These points cannot be too strongly emphasised in this connexion. There are, of course, differences in the size and appearance of the various mycelia that may be met with, but all of them share certain characteristics in common. Continuity, segmentation, dichotomous branching, uniform diameter, and clearness of outline in one plane are the salient features (Fig. 1). Parallel lines of growth are said to be characteristic for the trichophyta (Fig. 2), but no definite conclusions as to the actual nature of the fungus can be drawn without recourse to a cultural investigation which is beyond the scope of this article. For practical purposes it may be assumed that if a mycelium is seen to be growing in the roof of a vesicle, or in the sodden epithelium peeled off from the skin between the toes, it is pathogenic and the cause of the disease. Ringworm of the scalp can always be diagnosed from a microscopic examination of the typical, frayed, and opaque stump, which, owing to reactive changes between the root-sheath and the follicle, never gives rise to a sense of resistance when epilated. It should be superfluous to add that unbroken hairs never contain the fungus. The appearance of the mycelium in the stumps differs from that in glabrous skin by reason, maybe, of the increased resistance to growth among the more closely connected and tougher cells of the hair cortex. The result is apparently to cause a more frequent segmentation of the mycelium, and the appearance of "spores," which have, in fact, no mycological existence in this situation. These "spores," as is well known, may grow inside, outside, or on both sides of the hair sheath, according to the species of the infecting fungus (Fig. 3). Sometimes the sheath is ruptured, and then may arise the important necessity of differentiating between fine oil globules, as from the previous application of ointments from which an emulsion is formed by the potash (Fig. 4), and true mycelial elements. The difficulty should not arise, and can always be prevented by soaking the stumps in ether or acetone before the potash is applied. In tinea tonsurans, as in other areas, it is neither important nor practicable to make an exact diagnosis with the microscope. The question of large v. small "spored" ringworm can be best determined by cultures, and is only of academic interest. It should be noted that previous treatment with iodine, ointments, &c., frequently stultifies the microscopic findings, and that if there is a suppurative reaction, as so frequently seen in tinea barbæ, the results of a microscopic examination are almost invariably negative.

FIG. 1. FIG. 2.



Tinea unguium: invasion of the nail substance. The microphotograph (Fig. 1) shows the parallel growth of the mycelium characteristic of the trichophyta. Fig. 2 shows dichotomous branching. (Both 1/6 objective of the microscope.)

Pityriasis Versicolor—Seborrhœa—Scabies.

Another condition—it can scarcely be called a disease—in which a microscopic examination may be necessary to clinch the diagnosis is *pityriasis versicolor*. The growth of the fungus is very superficial and gives rise to little or no reaction in the skin. Here the term "scraping" is justifiable, for all that it is necessary to do is to remove a few superficial scales with a scoop or the back of a scalpel, and examine in potash under a 1/6 objective and through a small diaphragm. Masses of delicate fungus and spores form a matted felt-work which can hardly be confused with any other dermatosis. A similar procedure is indicated for suspected *seborrhœic* infection, with the difference that the films obtained must first be stained in a 1 per cent. solution of methylene-blue in order to demonstrate the pityrisporon (bottle bacillus), of Malassez, the acne bacillus, and the *Staphylococcus albus*, which are always present in variable numbers in all such cases. *Erythrasma* is yet another parasitic infection of the groins and adjacent parts, of importance only in differential diagnosis. It occurs mostly in men of middle age and over, and its causative agent—the *Microsporon minutissimum*—is easily seen in potash scrapings under the 1/6 or 1/12 objective. Among the most important, because so easily missed and so easily cured, is *scabies*, and it is often forgotten

that an ovum recovered from a burrow is as decisive in the diagnosis as the demonstration of the acarus.

Chronic Infections.

In wounds, ulcers, and sinuses of the skin the microscope may afford most valuable assistance. The case of primary and secondary *syphilis* hardly needs emphasis. In *tubercle* the bacillus is only found in the very acute forms of ulceration, unless prolonged and patient search in specially prepared serial sections is to be undertaken. When it is present in large numbers, as it may be on the tongue, penis, and round the anus, the prognosis is serious, for this type of ulcer is often the terminal phase of a general infection of the lungs or intestine. The bacillus is practically never found in scrapings from lupus vulgaris, although it is present in all such cases, and can be demonstrated in sections.

The discovery of bacilli resembling the Klebs-Löffler type in chronic and intractable ulcers very rarely indicates the presence of true *diphtheria* of the skin. Almost every cutaneous ulcer contains diphtheroids, which are to be regarded as a contamination rather than a causal factor in the necrosis. The final decision in a doubtful case will rest with the pathologist.

In suspected *leprosy* an immediate diagnosis may sometimes be made by staining the nasal mucus by the Ziehl-Nielson method, and the Hansen bacillus is invariably present in sections of the excised nodules. The *anthrax* bacillus swarms in the serum of bullæ round a malignant pustule, and no diagnosis of *actinomycosis* or *Madura* foot is complete without the demonstration of the causal streptothrix. *Blastomycosis* and *sporotrichosis* need expert pathological assistance for a demonstration, both in fresh smears and cultures.

Various Tests.

Diascopy is demonstrated to every student in the diagnosis of the non-ulcerated lupus lesion. By means of pressure with a glass slide or lens the hyperæmia round the lupus nodule is temporarily obliterated, and the primary infiltration of a characteristic "apple-jelly" colour clearly revealed. It is not always realised that the procedure can be applied in other chronic granulomata, and even in neoplastic conditions, and from this it follows that not every nodule visible on vitropressure is tuberculous in origin. The brownish staining of the wheals in urticaria pigmentosa can thus be made to stand out very clearly, and the absence of fading may be decisive in cases of suspected purpura.

FIG. 3. FIG. 4.

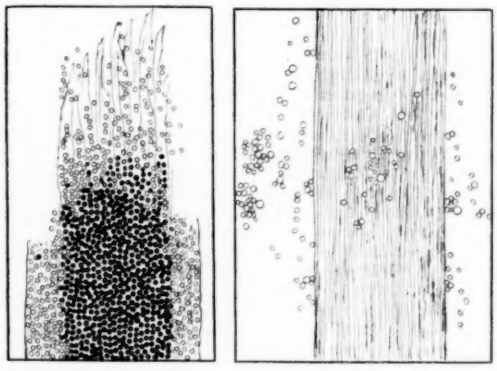


FIG. 3.—Diagrammatic drawing of hair-shaft invaded by microsporon of Audouini, the commonest cause of scalp ringworm in this country. Note the disruption of the swollen fasciculi by the "spores," which, however, do not penetrate between them but surround the shaft like a cuff, or "sand particles adhering to a wet glass rod" (Sabouraud). The difference in shading of the spores is an optical artefact.

FIG. 4.—Semi-diagrammatic drawing of normal hair-shaft which had previously been greased with vaseline and then mounted in potash. Note the variable size of the oil globules, which ought not to be mistaken for "spores."

A recent and somewhat over-valued aid to diagnosis which needs most cautious interpretation is the *phosphorescence* elicited by Wood's glass over a source of ultra-violet radiation. It has found its most popular indication in the diagnosis of tinea tonsurans, but it cannot be too strongly emphasised that many other structures besides the tinea stump will appear luminous when irradiated under these conditions, and that without confirmatory evidence, microscopic or clinical, the diagnosis of ringworm ought not to be made.

FIG. 5. FIG. 6.

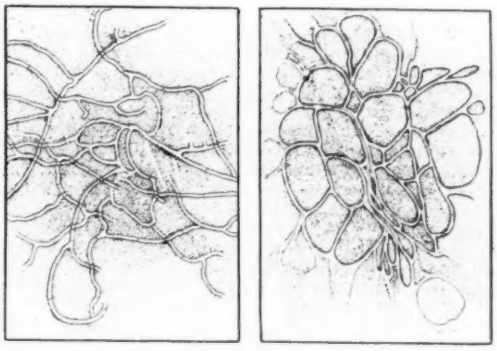


FIG. 5.—Semi-diagrammatic. Mycelium from a case of tinea circinnata of the wrist. Note continuity, dichotomous branching, septa, and uniformity of diameter.

FIG. 6.—Semi-diagrammatic. The periphery is not in focus. The highly refractile outlines are apparent, but cannot be those of mycelium because there are no septa, the refractility is an optical illusion which varies with the focus, and, as is well marked at the periphery, there is a distinct variation of the transverse diameters.

A similar warning applies to *tuberculin* and other cutaneous tests. The former is of some value in cases of chronic tuberculous infection, in particular the tuberculide, which is itself a symptom of specific allergic reaction *by the skin*, to the Koch bacillus. In the eczematous group the allergy is so pronounced that a positive result is apt to follow the inoculation of any antigen, whether specifically the cause of the eczema or not. Most dermatologists have therefore ceased to lay stress on the value of *protein skin tests*, either in eczema or urticaria.

The misinterpretation of the *Wassermann reaction* may occasionally lead to grotesque errors in diagnosis. A person with congenital syphilis may also be afflicted with psoriasis, lupus vulgaris, or pityriasis rosea, while, conversely, a man with tabes or (very rarely) a typical gumma may present us with a completely negative reaction. A previously positive result may become temporarily negative during pregnancy or after an acute specific fever—a phenomenon which, in part, initiated the modern malarial treatment of general paralysis. In cases in which the diagnosis of syphilis appears to be the most probable, recourse may be had to a small "provocative" dose of N.A.B., or an intramuscular myosalvarsan injection, or to a cutaneous test with the specific antigen—luetin.

The *examination of the urine* may throw light on the causation of a genital pruritus and dermatitis, but it does not follow that because there is a reduction of Fehling's solution the patient is a diabetic, or that even glycosuria is present. G. A. Harrison, in an article in this series, entitled Tests of Renal Efficiency,[1] debates this point at some length. Similarly, albuminuria may be only associated with, and not the actual cause of, senile pruritus. Seborrhœa and its complications are frequently associated with a pronounced acidity of the urine to litmus paper, but the reaction is not the only causal factor. A negative urinary report in a case of bromide or iodide eruption does

[1] THE LANCET, 1928, ii., 1092.

not stultify that diagnosis, if there is a history of halogen medication and clinical signs are sufficiently definite, for it is quite probable that the failure of the excretory mechanism is the cause of the rash.

Blood counts are sometimes indispensable adjuncts to correct diagnosis. Thus it should not be forgotten that pruritus, or an erythematous rash of wide distribution, may be the first symptom of leukæmia. Nearly all long-standing itching eruptions are associated with eosinophilia, and a pronounced excess is characteristic in dermatitis herpetiformis, pemphigus, and solar eruptions.

Of late years *X rays* have continued to play a not unimportant part in the determination of the focal sites of obscure chronic diseases. In dermatology their chief function has been in connexion with apical sepsis of the teeth, and such conditions as erythema multiforme, urticaria, and purpura have been cured or greatly benefited as a result of well-considered extractions. The interpretation of the radiograms is often a matter of difficulty. Cases are known in which the removal of condemned teeth had no effect on the cutaneous symptoms, and conversely, not a few in which, although the photographs were apparently negative, the extraction of teeth known to be dead, and therefore septic foreign bodies, was followed by immediate and permanent benefit to the patient. Every case has to be judged on its own merits. Undoubtedly the dentist is a better tribunal than the physician, for he has other means of deciding the issue besides X rays. The final decision should rest with the patient, and neither dental nor medical persuasion should be too cogent.

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Physician for Diseases of the Skin, Royal Northern Hospital.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. N. A. H. Barlow to be Surg. Comdr.

ROYAL NAVAL VOLUNTEER RESERVE.

Prob. Surg. Sub-Lt. C. Seeley to be Surg. Sub-Lt.

ROYAL ARMY MEDICAL CORPS.

Maj. G. Wilson is apptd. Dep. Asst. Dir.-Gen., Army Med. Servs., War Office, vice Bt. Lt.-Col. C. M. Drew, vacated.

Maj. F. C. Atkinson-Fleming, half-pay list, is restd. to the estabt.

TERRITORIAL ARMY.

Capt. C. A. R. McCay relinquishes his commn. on account of ill-health.

Lt. D. Stewart to be Capt.

Lt. W. T. de V. Thomson to be Capt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. R. Phillips, from Active List, to be Lt.-Col.

Lt. W. L. Lamb, from Active List, to be Lt.

MILITIA.

Maj. M. K. Nelson retires on attaining the age limit, and retains the rank of Maj.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions as Flying Officers for three years on the active list: J. J. Corcoran, C. C. Fenton, C. G. Harold, A. Sheehan, D. D. Watson, and E. A. Wilson.

INDIAN MEDICAL SERVICE.

Lt.-Col. W. M. Houston to be Col.

The undermentioned retire: Lt.-Col. V. H. Roberts and Capt. J. C. Drummond, who receives a gratuity.

Temp. Lt. Bhairo Prasad Nigam relinquishes his temp. commn.

Lts. P. H. Cummins and J. J. Beausang to be Capts.

Cawash Hormuzsha Dhala and Shridhar Damodar Dalal to be Temp. Lts.

Maj.-Gen. Sir Walter H. Ogilvie retires.

The undermentioned relinquish their temp. commns.: Temp. Lt. Hari Narian Gupta and Temp. Lt. Tarachand Davasingh Shahani.

The undermentioned have vacated appts. in India: A.D.M.S.: Lt.-Col. F. A. H. Clarke, R.A.M.C.; D.A.D.'s.M.S.: Lt.-Col. A. A. C. McNeill, I.M.S., Maj. G. L. Duncan, I.M.S.; D.A.D.H.: Maj. H. J. G. Wells, R.A.M.C.; D.A.D.P.: Capt. R. C. Wats, I.M.S.

Special Articles.

THE PANEL CONFERENCE.

PRIVATE PRACTICE AND THE HOSPITALS.

ON Oct. 24th the representatives of local medical and panel committees met in London for their annual conference. Dr. E. K. LE FLEMING presided for the fifth year in succession, and the meeting was held as usual in the British Medical Association's house in Tavistock-square.

Medical Certification: Disciplinary Procedure.

Last year's conference was largely devoted to discussing the reasons why claims for sickness benefit have lately increased. While protests were made against the allegation that panel practitioners in general have become careless in issuing certificates, it was agreed that a certain amount of laxity had always existed, and provisional approval was given to certain measures which would expose gross abuse of the sickness funds. The Insurance Acts Committee (I.A.C.) and the Ministry of Health have since been considering what action should be taken against practitioners who are thought to have made out certificates improperly, and the proposed machinery for dealing with such cases was explained to the conference last week. The Minister's first step is to refer the case to the panel committee (or to a committee formed for several counties) which will hear the charge and the evidence on both sides, and report whether the practitioner has failed to exercise due care in certification, and (if so) to what extent and how gravely. It will make recommendations to the Minister, and at the same time will furnish the defendant practitioner with a copy of its report and conclusions. If either the Minister or the practitioner is dissatisfied with the findings, the case will be referred to an appeal committee, which is likely to consist of three medical practitioners who are not officers of the Ministry. After considering the findings and recommendations of the panel committee, and (in case of appeal) of the appeal committee, the Minister will state what action he deems appropriate. The practitioner may then make further representations against the decision, and if he does not accept it the various findings and recommendations will be referred to an advisory committee composed of representatives of insurance practitioners, approved societies, and insurance committees.

In commending these plans to the conference, Dr. H. G. DAIN (chairman of the I.A.C.) said it was essential that the body which first heard the complaint should be professional, and that it should be able to make its representations direct to the Minister. The present system allowed of public criticism and press reports which caused regrettable misconceptions. On the other hand, the approved societies would not consent to any arrangement from which they were altogether excluded, and it was outside the province of the conference to tell the Minister what advice he should procure after receiving reports on the facts.

The constitution of the Minister's advisory committee provoked a discussion, in which Dr. C. F. T. SCOTT said it was wrong that professional matters should be judged by a predominantly lay committee. Like Dr. W. LOCK he held it contrary to the spirit of British justice that the Minister, an interested party, should appoint the tribunal to decide the issue. Dr. L. J. PICTON, for Cheshire, proposed that the advisory committee should be replaced by an independent barrister, sitting with a medical assessor, who would hear all parties and form an unbiased opinion. Panel practitioners, he said, had surrendered their claims to an appeal to the High Court because they were assured that cases would be referred to a professional committee—consisting of three medical officers of the Ministry and three of their own repre-

sentatives. This committee was now to be disbanded in favour of a partisan body on which approved societies and insurance committees would have a majority.

Dr. DAIN replied that these criticisms of the scheme arose from misapprehension. There would be no interposition by laymen until the questions of fact had been decided. The advisory committee would not be able to re-try the case; it was not a tribunal or a court of appeal, it would not hear evidence or advocates, and its duty would merely be to advise what action should be taken on the proven facts. This meant that the approved societies and insurance committees were cut out of the proceedings till after the case was judged, and this was as far as the Minister would go. If the approved societies were not allowed to say something to the Minister at some stage the scheme would fall through, and this would be a pity, because everyone was anxious to put a stop to the action of those few practitioners whose lax certification was prejudicing the position of their colleagues. Dr. E. R. FOTHERGILL called this "sentiment," and pressed for amendment of the draft regulations. But the conference did not accept his view, and ultimately gave its approval to the procedure proposed by the Ministry.

Dr. G. J. B. CANDLER-HOPE, for the North Riding, suggested that in cases of excessive certification the fine for a first offence should not exceed £5, and complained that the amounts withheld by the Ministry often bore no relation to the recommendations of the medical service subcommittees. No law was passed without stating a maximal penalty for its infringement, and he wanted to introduce the principle that breach of the regulations should be met by payment of a fixed sum. Dr. DAIN, however, took the view that each case should be decided on its merits. A maximum was undesirable because it tended to become a minimum, and it was not the least bit true to say that these things were decided at the mere whim of the Minister. "We have got rid of all that business now," said Dr. Dain, "and we are satisfied that the machinery introduced a year or two ago is working extremely well."—The North Riding amendment was lost.

Dr. J. NELSON, for Kingston-upon-Hull, proposed "that the statistics relating to the issue of certificates by doctors in each area should be circulated to panel committees as in the case of prescribing certificates." This was accepted by the conference on the ground that it might be useful to a practitioner to know how his issue of certificates compared with the average for the same district.

Reference of Cases to the R.M.O.

Dr. DAIN reported that approved societies were finding that the money available for referring cases to regional medical officers was all used up—(cheers). Surprising as it might seem, the societies were anxious not to refer cases unnecessarily, and hence they wanted to be able to tell which patients were being visited at home. It had therefore been suggested that Form Med. 40 should in future bear the alternative words "at your residence" and "at my surgery," so that by striking out one or other the doctor could indicate where he had seen his patient. Having stipulated that failure to strike out the words should never get the practitioner into trouble, Dr. Dain felt that here perhaps was a convenient occasion for agreement with the societies. But this warm breath of charity had no chance against a blast of six reasons to the contrary with which Dr. J. W. ANDERSON swept the conference. Blood ran cold throughout the room while Dr. Anderson spoke of unscrupulous patients who would strike out the words "at my surgery" so as to avoid going to the R.M.O., and there was a further shudder when he suggested that patients would insist on being seen at home if they got to know that this would save them from having their cases referred.

Two other questions concerning the work of regional medical officers were raised towards the end of the meeting. Dr. J. O. SUMMERHAYES proposed for East Sussex—

That it be an instruction to the Insurance Acts Committee to take such steps as may be necessary in order to secure that the minimum time within which information required to be given to the regional medical officer shall not be less than seven days instead of 48 hours as at present.

He complained that 48 hours was an inconveniently short time for a reply, but Dr. DAIN said he hoped the conference would not agree to this. The practitioner's object was to get things dealt with expeditiously, and it would be a mistake to pour sand into the Ministry's machinery. The patient ought to go to the R.M.O. as soon as possible after seeing his own doctor, and thanks to a general speeding-up the interval had now been reduced to a week.—The motion was lost.

Dr. G. F. WHYTE, for Dundee, brought forward a motion urging that the present conditions governing appeal or arbitration against the decisions of the R.M.O. or D.M.O. (district medical officer) are unsatisfactory and suggesting that the I.A.C. should negotiate with the Ministry of Health and the Department of Health for Scotland in order to institute a medical board of appeal. Dr. Whyte thought that both patient and panel doctor had grievances. The patient's appeal from the R.M.O.'s decision was heard (if at all) only after long delay during which payment stopped, whilst the doctor had his opinion simply set aside by another doctor—often one, moreover, who saw but little practice and had acquired an official mind. Dundee believed it would be better if doubtful cases were referred to a special medical board.[1] Dr. DAIN agreed that the insured person had a very thin time in appeals against his society, but pointed out that the methods governing such appeals were no concern of the I.A.C. Where a practitioner protested against an R.M.O.'s decision the case was usually referred to another R.M.O. As there was no time for fuller discussion, Dr. Whyte agreed that his resolution should be referred to the I.A.C. for consideration.

Certificates for Convalescence.

On a motion by Hertfordshire suggesting that the medical certification rules might be altered "so that it is not essential that an insured person should have been under the continuous care of one practitioner for 28 days before that practitioner may issue a convalescent certificate," Dr. DAIN said that he thought the I.A.C. should tell the Ministry that the convalescence certificate was dangerous to doctors and useless to anyone else. He had often tried to get the period reduced from a month, and if no alteration could be made he thought that as a measure of safety practitioners should refuse to use this certificate. After properly saying that a person was unfit for work and required convalescent treatment it was undignified to be hauled up because the time happened to be a day short.—This question was referred to the I.A.C., together with a motion by Worcester to the effect that an insured person need only be incapable of work for 14 days, instead of 28, before a certificate may be issued.

At Hertfordshire's suggestion it was also agreed—

That all National Health Insurance Certificates should have printed on them in red letters, similar to those on the front pages of the medical certificate books, that "These forms are to be used for National Health Insurance purposes only."

Prescribing and Dispensing.

The I.A.C.'s annual report says that the Minister of Health has appointed a central advisory committee to assist insurance committees "to proceed on uniform principles in defining drugs or medicines for the purpose of medical benefit." This committee will be asked to decide whether a substance or preparation is (*a*) never a drug, (*b*) always a drug, or (*c*) sometimes a drug. Since there is at present no way of dealing with insurance practitioners who prescribe on the

[1] Similar views were set out in our correspondence columns on Oct. 19th, p. 850.—ED. L.

official form substances which insurance committees do not regard as drugs, the new advisory committee has prepared a draft article which provides machinery for dealing with such cases. Dr. DAIN explained that the proposed regulations were framed on the assumption that this irregular prescribing did not require disciplinary action, and the general principle behind them was that if anything is ordered on a prescription the chemist must dispense it. The draft article was approved by the conference without discussion.

The report also says that the I.A.C. has received representations that the cost of such drugs as quinine urethane ampoules should not fall upon the dispensing doctor's 2*s*. 3*d*., or the non-dispensing doctor's 1*s*. 3*d*., per 100 patients, but should be a charge on the drug fund. Dr. DAIN announced that he had now been told by the Ministry that quinine and urethane and similar solutions were shortly to be placed on the list.[2] Dr. H. DICKIE spoke of the increase in the cost of medicines since the early days of the Act, and moved, for Northumberland, "that drugs administered personally by a practitioner, as part of a course of treatment, and not as an emergency, should not be required to be supplied by him at his own expense," as at present prescribed in the terms of service. This resolution, together with one by Northamptonshire about the prescription of liver extract, was referred to the I.A.C. for consideration.

Dr. DAIN reported that the new National Formulary had been adopted in about 50 of the 128 insurance areas in the country. Dr. H. S. BEADLES expressed the view of West Ham that while the new Formulary was part and parcel of the insurance scheme, it had not been prepared for the benefit of practitioners. (Indeed it would prevent them using their own local pharmacopœias.) The distribution should therefore be made gratis. This suggestion commended itself to the conference, which then proceeded to pass the following motion proposed by the I.A.C.:—

That the Conference supports the Council of the British Medical Association in its efforts to obtain amendment of Section 3 of the 1925 Dangerous Drugs Act, and recommends that heroin and its salts should come under the same conditions as morphine and its salts; also that the Council should on all possible occasions urge the Government not to enter into international conventions involving medical questions until the opinion of the medical profession has been ascertained.

Encroachment of Hospitals on Private Practice.

Dr. FOTHERGILL, for Brighton, drew attention to the additional benefit which is defined as "payments to hospitals in respect of the maintenance and treatment therein of members, and the payment of the whole or any part of the travelling expenses incurred by or in respect of members in travelling to and from hospitals." The work that should be done by private practitioners, he said, was going to hospitals where it was done gratuitously by medical men. It was essential therefore that certain lines should be laid down for the future, and he proposed a motion "that any scheme prepared by an approved society for the provision of additional benefits to prove acceptable to the medical profession should include the following:

(*a*) That the arrangements for consultations and specialists' services should provide that these services shall be given, so far as is possible and consistent with the best interests of the patients, by a private practitioner at his consulting rooms or at the patient's own home, and not at the out-patient department of a voluntary or State institution.

(*b*) That approved societies should be able to enter into financial arrangements with both voluntary and State institutions for the provision of hospital benefit for insured persons, such arrangements allowing insured persons to select as between the two classes of institution.

(*c*) That hospital benefit be defined to include in-patient treatment, as also consultant and specialist services, which, consistent with the best interests of the patients, cannot be given by a private practitioner at his consulting rooms or at the patient's own home.

[2] In a recent "range of service" case the referees decided that the treatment of varicose veins in the leg by intravenous injections is within the range of an insurance practitioner's agreement.

Dr. PETER MACDONALD thought the conference should not commit itself to these definitions without further thought. His experience of ophthalmic benefit showed that it often had to be given at clinics, and his experience of hospital management taught him that it might be quite impossible to make arrangements for insured persons to select the kind of hospital they required. Dr. LOCK also held that the proposals should go to the I.A.C. for consideration, and this suggestion was adopted by the meeting after Dr. SUMMERHAYES had expressed his fear that general practice would be wiped out by the Local Government Act. The time had come, he believed, to make a bold bid to recover the practice now being taken over by hospitals, specialists, and medical officers of health.

The Place of General Practitioners in Hospitals.

This opinion of Dr. Summerhayes' found much support in a subsequent discussion on a motion by Manchester demanding that practitioners should be allowed to attend and treat those of their patients who enter voluntary and municipal hospitals. Dr. E. JOHNSTONE, the proposer, felt that the future of the general practitioner depended on his participation in the work of public hospitals and public health services. Cut off from the instruments of his craft and the coöperation of colleagues he could never rise to be more than a distributor of stomach bottles and cough mixtures.—Dr. M. W. RENTON asked how medical men could become proficient in modern methods if they did not have access to clinics and hospitals.

Dr. BRACKENBURY proposed, as an amendment to the Manchester motion—

That it is desirable that provision be made in, or in association with, voluntary hospitals and municipal hospitals, or in separate institutions, for practitioners to attend and treat those of their cases who are admitted to such institutions.

Dr. MACDONALD supported this resolution because it went beyond the declared policy of the British Medical Association. It was desirable that general practitioners should have access as soon as possible to the hospitals of the country, which had hitherto been looked on too much as the perquisite of specialists and consultants.

Dr. DAIN spoke of difficulties. The practitioner, he said, often fought shy of appointment to a hospital lest he should be compelled to work there when it was inconvenient. At big hospitals it would often be impossible to give the right of entry to a large number of doctors who could call on the services of the nursing staff. A questionaire had been sent out to voluntary hospitals all over the country, said Dr. Dain, to find out what facilities there already were for general practitioners to keep their patients under observation and treatment.

Sir RICHARD LUCE said that while he was in favour of general practitioners having access to hospitals for their patients, it was difficult to alter the closed system of staffing where it was already established. The hospitals to be transferred to municipalities offered a great chance to develop the work of practitioners in new places instead of disturbing the good work now being done.

Sir ROBERT BOLAM asked what the general practitioner really wanted in the hospital. Did he want to do general work or consultant work? In voluntary hospitals did he want to compete with the honorary staff, or did he want to do the work of house surgeon or house physician? Sir Robert thought the question should be referred to the I.A.C. for report.

Dr. D. C. MCARDLE had come to the conclusion that what most practitioners wanted was to be allowed to start their careers all over again, which was impossible. The real opportunity lay with the young men now coming out of the universities, who must not be allowed to fall into the rut of their predecessors in general practice.

Dr. SUMMERHAYES said that what he himself wanted was to be able to go into the hospital and see that his patient's broken leg had been set properly and was

being nursed properly. He wanted to be able to do lots of things, including minor operations, which general practitioners could do perfectly well if they had the chance—indeed, much better than they were being done now.

Dr. Brackenbury's amendment was carried, and a proposal to refer the subject to the I.A.C. was lost (by a small majority) because the conference wished to express its general opinion at once.

Periodic Examination of Insured Persons.

Early this year the Lancashire Insurance Committee tried to get a ruling that healthy people are entitled to periodic medical examination by their panel doctors. The local panel committee objected, and maintained that a fee should be charged for a service of this kind. The I.A.C., though it did not dispute that it is part of the doctor's duty to examine any insured person who presents himself in the ordinary course of practice, informed the Ministry that it is of opinion that periodic and systematic examination of insured persons who believe themselves to be in good health is not within the present contract of insurance practitioners. Lancashire brought before the conference a resolution arising out of this decision, and calling for modification of the definition of the range of service. But Dr. DAIN persuaded the meeting to leave the problem alone for the present. The demand for examinations of this kind did not yet constitute any burden, and the fact that no fee need be demanded enabled medical men to deal in a human way with patients who asked a perfectly natural question. The trend of public opinion was such that in course of time panel practitioners would probably be asked on what terms they would render this service to all insured persons.

Importance of Keeping Medical Records.

Dr. C. EDE, for Wiltshire, proposed:—

That the conference instructs the Insurance Acts Committee to take steps to impress on every insurance practitioner the fact that owing to neglect in keeping the statutory medical records, many men are furnishing regional medical officers, and thus the Ministry, with misleading evidence which suggests that they are being overpaid, and are therefore jeopardising not only their own income, but those of their fellow practitioners.

It was an open secret, he said, that all over the country men were failing to put down all their attendances on the record cards. This would not matter a bit if it were not that R.M.O.'s were collecting the cards and analysing the figures at the Ministry. As it was, a day of reckoning was at hand. When the question of revision of the capitation fee was raised again these figures would be a trump card in the hands of the Ministry. The practitioners' representatives would either have to accept them or admit their inaccuracy—in which case the Ministry would retort: "But you've been *paid* to keep these records." There were only two ways out of the difficulty. If the profession was sufficiently strong and united it could refuse to have anything to do with records of attendances and visits—excluding clinical records, which were useful to the doctor and his patient. The other alternative was to take the action suggested by the Wiltshire motion.—Dr. DAIN described the present situation as "very awkward," and the motion was passed.

A Hardship for Pregnant Women.

Dr. J. J. BEKENN, for Birmingham, spoke of the resentment caused by approved societies sending pregnant women to the R.M.O. when they were nearing term. He proposed—

That when a medical practitioner has satisfied himself that an insured person is so far advanced in pregnancy that on that account she will not be able to work again until after her confinement, it shall be lawful for him to give a certificate to that effect, stating that the woman is unable to follow her employment, and that such certificate shall be sufficient warranty to pay the sick benefit until the termination of the pregnancy.

Dr. O. B. TRUMPER anticipated criticism of this motion by pointing out that quite a large number of the women were not going to be attended by the practitioner at confinement and therefore need not visit him.—Dr. A. W. HOLTHUSEN told of a chambermaid, pregnant eight months, who was described by her practitioner as unfit to work. Her approved society referred the case to the R.M.O., who saw her at eight and a half months and said she was fit to go on with her work as a chambermaid. The approved society then brought a charge of lax certification against the panel doctor!—The resolution was referred to the I.A.C., after the opinion had been expressed that it was very valuable to have patients calling weekly at the surgery during the last six weeks of their pregnancy.

The Range of Service.

Dr. FOTHERGILL, for Brighton, introduced a motion laying it down that when it has been decided that an operation or other service is outside the scope of a practitioner's obligation, it is no concern of any committee or authority to decide that the practitioner who renders the service has appropriate skill or experience.—This motion produced a long discussion, in the course of which Dr. DAIN said it was quite time that this question was reconsidered, inasmuch as new methods of treatment were continually being evolved which were outside the terms of contract but could easily be learnt. His suggestion that the resolution should have the attention of the I.A.C. was accepted.

Dr. RENTON proposed that the I.A.C. be instructed to draw up a list of services outside the contract of the insurance doctor. He thought that these should include the injection treatment of varicose veins, which was by no means easy, and should not be approached lightly. He had asked some junior surgeons at an injection clinic whether they would rather stake their reputations on 100 unselected cases of varicose veins or on 100 unselected cases of appendicitis. The answer was "the appendix every time."—Dr. DAIN asked the conference not to pass the motion. It was not the business of the I.A.C. to draw up a list, and anyone could obtain the Ministry's list on application.—His appeal was successful.

Miscellaneous Topics.

The three following motions were passed on the proposal of Newcastle-upon-Tyne, Kingston-upon-Hull, and Cumberland respectively:—

That in the opinion of the medical profession additional treatment benefits should be uniform and available to every insured person.

That the conference is of opinion that medical record cards should not be produced at a hearing before a medical service subcommittee without the consent of the insured person having first been obtained, except when such production is considered necessary, in his own defence, by the practitioner concerned; and that the clerk to an insurance committee has no right to demand the production of a medical card for medical service subcommittee purposes.

That the Insurance Acts Committee be requested to consider the position of insured persons resident in convalescent homes in regard to being signed on by the medical officers in charge as temporary residents, whether they require medical treatment or not.

A motion was put forward by Buckinghamshire asking the I.A.C. to press for "further recognition by the Ministry of Health of the value of timeage and mileage spent by rural doctors on their insured patients." This motion was lost.

Dr. H. J. Cardale was elected chairman of the conference for the coming year, and the thanks of the conference were given to Dr. Le Fleming for his conduct in the chair.

PRESENTATION TO A PLYMOUTH SURGEON.—On Oct. 11th Mr. T. Young Simpson was presented with a walnut compactum cupboard and an illuminated autograph book from many of his medical colleagues on his retirement from practice owing to ill-health due to overwork. Mr. Simpson has had a large surgical practice in Plymouth and the surrounding districts since 1906, and his enforced retirement will be keenly felt by many of his medical confrères and a great number of the general public.

MEDICINE AND THE LAW.

Coroner's Inquest and Police Proceedings.

AT the resumption recently of an adjourned inquest due to a traffic accident the coroner for South-East London complained that the police had interrupted the course of his inquiry. Two Lewisham men were fatally injured on August 31st, being run into by a private motor-car. On the night before the inquest the police arrested the driver of the motor-car and thereby, as the coroner contended, interfered both with the immemorial privilege of the coroner's jury to inquire into the death of two local inhabitants and also with the driver's right to give his own account of the incident at the earliest possible moment to the coroner and his jury. The magistrates committed the driver for trial, and he was sentenced to six months imprisonment on Oct. 17th at the Old Bailey.

The concurrent operation of a coroner's inquest and of criminal proceedings before a magistrate in cases of homicide was a duplication of machinery which engaged the attention of the Departmental Committee on Coroners 20 years ago. It had two prominent features: it wasted the time of witnesses (not to mention the accused) in attendance at successive stages of two parallel investigations, and secondly, it caused an overlapping of committals by the coroner and the magistrates. In this latter connexion it was on record that a person accused of manslaughter on board ship was once committed by a coroner for trial at Exeter Assizes and by the magistrates for trial at Bodmin. In addition to this cause of unnecessary inconvenience and expense there were the two difficulties that committal by a coroner often follows the reception of evidence not strictly admissible in the assize court, and that in practice the prosecution always preferred to act on the magisterial proceedings rather than on the inquest. On the other hand, there were instances where the dismissal of a charge before the magistrates was followed by successful prosecution at assizes on the coroner's committal. When at length Parliament dealt with these matters in the Coroners (Amendment) Act of 1926, it decided to end the duplication by suspending the inquest. Under Section 20 if, before a coroner's jury has given its verdict, the coroner is informed that someone has been charged before examining justices with the murder, manslaughter, or infanticide of the deceased, the coroner "shall, in the absence of reason to the contrary, adjourn the inquest" till the criminal proceedings are over. When the latter proceedings are concluded, the coroner "may . . . resume the adjourned inquest if he is of opinion that there is sufficient cause to do so." One adequate "reason to the contrary" against an adjournment would be, as the editor of Jervis on Coroners observes, the desirability of receiving the report of an analysis already ordered. One "sufficient cause" for resuming an inquest would be to avert a failure of justice where magistrates have refused to commit for trial. The editor of Jervis adds his opinion that in all street accidents the coroner should certainly complete his inquiry.

The brief report of the inquest at Lewisham mentions the arrest of a person by the police, not the charging of that person before the magistrates. It is the latter, not the former, step which is the condition precedent to adjournment of the inquest. A coroner might be able to conclude his inquiry notwithstanding arrest; in any case he can (and, in the Lewisham case, no doubt rightly did) complete it later. The police, of course, are under no obligation to time their moves in a case of suspected homicide so as to suit the coroner. As, however, the relations of coroner and police are mutually helpful, it is undesirable that one inquiry should seem to be jockeying the other for position. Some part perhaps of Major Whitehouse's complaint is in effect directed not against the action of the police to-day but against that of Parliament in 1926. In some respects, as the British Medical Association stated to the Departmental Committee many years ago, the office of coroner is a vestigial structure. Parliament is unlikely to restore to that office the power which it took away in 1926; it may even make yet further inroads, though the Home Secretary has just announced his view that the amending legislation of 1926 is sufficient for the present.

SURGICAL CATGUT.

THE preparation of surgical catgut involves the production of material which is free from bacterial contamination, and yet remains flexible, strong, and absorbable. Lord Lister, who introduced sterilised catgut into surgical use, spent 40 years in attempting to improve its manufacture, and the Medical Research Council, in a preface to a green book[1] published to-day, state that the work recorded therein stands in historical succession to his classical studies. They draw attention to the dilemma by which the catgut maker is confronted. Catgut can be efficiently sterilised, but every method of disinfection has some effect in diminishing the tensile strength of the ligature, upon which its surgical value and the safety of the patient depends. The efforts of Prof. Bulloch and his colleagues have been directed to ascertaining the methods by which bacteriological sterility can be achieved with least damage to the physical qualities of the material. Their investigations have had among valuable positive results at least one negative finding of importance—the discredit of biniodide of mercury as a suitable sterilising agent. The general conclusions reached are summarised as follows:—

1. It has been shown that the pH of the collagen ribbon wash liquid is an important factor in the production of ligatures. To prevent degradation a wash liquid of pH 4·7 is required, but for optimum strength pH 8–9. A compromise may be effected by carrying through most of the process of washing in a solution of pH 4·7 and finishing with a bath of alkali at pH 8–9. For this same reason the ribbons should not be washed in water before spinning.

2. Optimum strength of ligature is obtained by using narrow ribbons and spinning each individually and then collectively, so that each ribbon makes 2·5 turns per inch and then collectively a further 5 turns per inch. It is important that the spinning should be uniform otherwise the strength and diameter along its length will vary.

3. It has been shown that when ligature is treated with iodine an acid is produced which is harmful for the reason given in (1). Means of reducing or eliminating this effect have been worked out by the use of potassium iodate.

4. It has been demonstrated that the treatment of ligature for 8–9 days in such a way that it absorbs 12 per cent. of its weight of iodine ensures sterility.

5. The disadvantages of excessive treatment with iodine have been demonstrated and the advantages of removing the iodine from the ligature after sterilising indicated.

6. Data have been obtained whereby control of the amount of the absorbed iodine may be obtained.

7. The advantages of incorporating glycerol in the iodine solution and in the final alcohol solution have been illustrated, particularly from the point of view of flexibility of the ligature, and therefore, strength of the knot.

8. It has been shown that the ligature in aqueous iodine swells. This may be reduced by treating it under tension, when its tensile strength is increased.

Important practical issues are raised by this report. Deaths from tetanus and other infections are known to have resulted from the use of contaminated ligatures, and though fatal results attributed to the use of imperfect catgut are numerically very rare indeed in relation to the vast total number of ligatures used in surgical operations, it is nevertheless recorded that some infection was found in every one of eight batches of catgut ligatures purchased in 1927. The data given in this report and the experience gained in obtaining them have already been useful in the guidance of administrative action. The licensing authority under the Therapeutic Substances Act has decided to add surgical catgut to the list of substances

[1] The Preparation of Catgut for Surgical Use. By W. Bulloch, L. H. Lampitt, and J. H. Bushill. Medical Research Council, Special Report Series No. 138. H.M. Stationery Office. 1929. Pp. 178. 4s.

subject to control under the Act, and in the future the profession and the public will have better guarantees that catgut supplied has, in fact, the purity and quality claimed for it.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

National Health Insurance.

THE second reading debate in the Dail last week on the National Health Insurance Bill, 1929, gave the opportunity for a discussion of many of the problems of national health insurance. The Bill, the second reading of which was moved by Mr. R. Mulcahy, Minister for Local Government and Public Health, is intended to give effect to some of the minor recommendations of the committees of inquiry which reported in 1925 and 1927. It proposes to abolish the class of deposit contributor, and to make consequential changes in regard to the power of societies to refuse or expel members. It also proposes to abolish insurance committees, and to transfer their powers and functions to the county boards of health. The funds formerly available for the insurance committees will be diverted toward the expenses of medical certification. The Minister said he had hoped to deal with the question of amalgamation of societies by an amendment to the present Bill, but he found that it would be more convenient to deal with it in a second measure. He intended, therefore, after Christmas to introduce a Bill containing proposals concerning amalgamation. It would encourage voluntary amalgamation, and would give power to the National Health Insurance Commissioners, after a period of two years, to effect compulsory amalgamation to a maximum number of 12 or 15 societies for the whole State. At present there were 65 societies. Compensation, but not pensions, would be granted to employees whose services might be dispensed with as a result of amalgamation. The Minister stated that he was not at present putting forward any proposals for medical benefit, but that personally he thought some system of medical benefit was desirable. The effecting of economies in administration would hasten the day when they would have medical benefit. Mr. O'Kelly, of the Fianna Fail party, moved an amendment declining to give a second reading to the Bill, until proposals should be laid before the Dail providing for (1) administration through one society, and (2) medical benefits. He explained, however, that, while his party thought certain amendments necessary, they did not intend to oppose the Bill. He believed that the establishment of a system of medical benefits would improve the public health, and put a stop to the wastage of life all over the Saorstát. Mr. O'Connell, leader of the Labour Party, was also in favour of medical benefits: he thought nationalisation of the administration of national health insurance was to be preferred to any modification of the present system of administration by approved societies. In this he was supported by Dr. T. Hennessy. The latter also spoke of the necessity of a system of medical benefit, and favoured the establishment of a national medical service which would provide medical attendance not only for the insured but for their dependents. He quoted figures to show that at present in the cities the poor-law medical service was inadequate to give medical attendance to the workers and their families. Several other deputies spoke in favour of a medical benefit, and none spoke against it. This unanimity in all parts of the House is gratifying, and should render the Minister's task easier when he finds himself in a position to tackle it. His chief opposition comes, one may assume, from the Department of Finance. The proposed establishment of a system of medical benefits in Northern Ireland will render the problem more pressing in the Irish Free State, which up to the present has shown a more progressive spirit in matters of health than the Northern Province. The present Bill was given a second reading.

HYDROLOGY AND RHEUMATISM.

THE BUDAPEST CONFERENCE.

THE International Society of Medical Hydrology, in association with the International League against Rheumatism, has held its annual meeting this year from Oct. 13th–18th in Budapest, under the presidency of Baron KORÁNYI, professor of internal medicine; with three subsequent days in Austria. About 300 members and guests attended the meetings, representing 21 countries; Russia, Finland, Bulgaria, and Norway being represented for the first time. Receptions were accorded to the Society by the Regent, the Ministry of Social Welfare and Labour, the Ministry of Agriculture, the Lord Mayor of Budapest, and the Hungarian Balneological Society, and opportunity was found for examining the many establishments for thermal and mud baths in the city, including the popular Wave and Strand Baths.

A new Committee on Social Hydrology was appointed by the Society, and the existing facilities for treatment of insured persons were studied both in Hungary and Austria. Groups of rheumatic cases were investigated at the Szt. Lukács Baths at Budapest and the Wenckebach Clinic in Vienna.

The Action of Hypertonic Waters.

Hungary is rich in hypertonic bitter waters like those of Hunyadi János. Prof. DALMADY (Budapest) referred to the fact that the SO_4 ion which they contained increased secretion and transudation by the intestinal mucous membrane, but not the concentration of the blood. He showed that stronger Glauber's salt solutions were irritant and increased the formation of mucus, whilst the bitter waters had been drunk for many years without irritation and without any increase of alkali loss. They were of value in causing effortless evacuation, and in larger doses in medical and surgical practice where free purgation was desired; also for prolonged use in arterio-sclerosis and congestive cases with a tendency to hæmorrhage, and especially in certain toxæmias. Many chronic diseases were amenable to hypertonic waters, according to the old doctrine "qui bene purgat bene curat." An unbiased re-examination of this method of treatment was called for.

Prof. PINILLA (Madrid) contributed observations on the cryoscopy and viscosity of the hypertonic waters of Spain, of which that at Carabaña was a type. It had been clearly shown that a nervous stimulus was necessary for endosmosis, and Sanarelli had suggested that purgation was due to the stimulation of the nervous network by dissociated ions. Probably the process of purgation was brought about by the formation of hydrophile colloids and their supersaturation, analogous processes to those which took place in vegetable tissues in springtime, leading to the abundant production of liquids.

Dr. HARPUDER, Director of the Balneological Research Institute at Wiesbaden, pointed out that the SO_4 ions were difficult of resorption. In concentrated solutions they powerfully stimulated secretion by the bowel, hindered the resorption of other substances, and set up peristaltic waves. They also relaxed the sphincter of the gall-bladder. He found that hypertonic waters did cause a degree of inspissation of the blood as well as some increase of total metabolism.

Dr. FORTESCUE FOX (London) held that hypertonic waters (in England Harrogate, Cheltenham, Leamington) had their chief indication in the prophylactic treatment of the congestive conditions commonly met with in middle life, leading to variously located crises in the digestive, circulatory, and nervous systems.

The Action of Baths in Cardiovascular Disease.

Dr. Fr. SCHMIDT (Hungary), from his experience on Lake Balaton, believed that the most important effects of CO_2 baths were the changes that take

place in vascular tone, and in the rhythm and volume of the pulse. By varying the stimuli in the bath—thermal, chemical, and mechanical—the effect of the bath could be altered at will, so as to increase or diminish the work of the heart. It was probable that with the dilatation of the superficial vessels the coronary arteries were also dilated. The above stimuli could be so combined in the CO_2 bath as to have a purely sedative effect on the nerve centres and were hence often of value in hypertension and even angina pectoris.

Dr. A. MOUGEOT (France) found natural CO_2 baths of special value at the onset of cardiac failure. If properly given they were vasodilator and cardiotonic and could be safely used even in cases of extreme hypertension. He agreed with the German school of hydrology that patients with cardiovascular disease have everything to gain from baths and little or nothing from the ingestion of cold waters.

Dr. KORNMANN (Switzerland) agreed that every balneotherapeutic irritation-complex could be regulated according to its form and time doses, and that in many cases of circulatory disturbance an individual optimum of the circulatory dynamic could be brought about and maintained as a result of bath treatment.

Two discussions took place at the meetings of the Ligue International contre le Rheumatisme:

*The Relation Between Acute and Chronic Rheumatism.**

Docent Dr. JULIUS VON BENCZUR (Budapest) pointed out that the word rheumatism was used to include: (1) diseases of the organs of locomotion, excluding only the nervous and traumatic; or (2) every inflammatory affection about the joints of unknown cause; or (3) diseases produced by chill, irrespective of the common bacterial and metabolic factors. He regarded chronic rheumatism as a chain of constantly recurring reactions to rapidly repeated stimuli. Arthritis and peri arthritis might arise purely from chill. There was a constant struggle between causes and resistance; the weaker the resistance, the stronger was the disease, and the greater was the effect of small causes. He agreed with the French conception, which the Germans also admitted, that certain subjects were "candidates for arthritic disease," by permanent or temporary predisposition from some metabolic irregularity. In such subjects chill might induce acute rheumatism, especially when accompanied by fatigue, which was also an important factor of causation. In the German Army 60 per cent. of cases of acute rheumatism occurred during the first year of service. A common disturbance in all forms of rheumatism was dysfunction of the small arteries and capillaries of the skin, with failure of the normal reaction to cold and heat and disturbance of blood-supply due to atony or hypertonia of these vessels. With reference to age-incidence in Hungary, the period of acute rheumatism was from puberty to 40 years, two-thirds of the deaths occurring between the ages of 5 and 25; muscular rheumatism and neuralgias, from puberty to 60; sciaticas and lumbagos, from 30 to 60; acute and subacute muscular rheumatism, from puberty to the climacteric, and primary chronic arthritis in the 'fifties.

Docent Dr. ERNST FREUND (Vienna) held that acute rheumatism was perhaps decreasing but more often than formerly passed over into a chronic stage in later years, from hereditary or acquired constitution. This was partly a senile change. The chronic cases without heart affection differed from the acute both clinically and prognostically.

Docent Dr. GUNNAR KAHLMETER (Sweden) said that in Sweden the arthritis which ran a chronic course from the outset was far more common than that which followed an acute attack; but it presented clinical features indicative of infection. These were: slight elevations of temperature, blood changes (anæmia, slight leucocytosis with neutrophilia and displacement to the left in earlier cases and relative lympho- and mono-cytosis in more advanced cases, also increased V.S.); chronic endocarditis in 25–40 per cent. cases; emaciation and muscular weakness, and clammy skin. Besides this common (probably infective) form of arthritis, "climacteric arthritis" (probably not infective) was common in Sweden; monoarthritis and osteoarthritis were also to be classed as non-infective. He favoured Weil's view that rheumatic fever is not merely an acute disease but rather an illness like syphilis or tubercle, liable to recurrence in a chronic form after apparent recovery; and he believed that both the acute and chronic diseases might probably be due to a pure infection of the same virus, differing in virulence and the reaction provoked.

*The Hæmatology of Rheumatic Disease.**

Dr. BILKEI PAP (Budapest) agreed that many cases must be attributed to constitutional inferiority or diathesis, probably due to a disturbance of the vegeto-nervous system and which was unable to react towards infection. There was no characteristic blood picture and he therefore held that rheumatic polyarthritis was not a septicæmia. Much importance attached to the chemical and physical analysis of the blood albumins. Increases in fibrinogen and globulin and of flocculation could be measured and used for differential diagnosis. The precipitation (V.S.) test was also of much value. Infective forms of disease showed increased precipitation, but this test gave definitely normal results in degenerative, traumatic, and metabolic rheumatism.

Dr. ARNOLD ZIMMER (Berlin) stressed the frequency of association of arthritis with endocrine disturbance. There were many purely endocrine cases in which no infection was found and many infective cases in which no endocrine trouble was found, but there were many mixed forms differentiated by endocrine reactions, the majority being ovarian. Abderhalden had devised a method for determining the endocrine factor by an examination of the serum. The presence of endocrine albumins like that of other foreign albumins liberated a defensive ferment which destroyed these foreign bodies. The presence of the products of destruction could be measured by an interferometer and it was claimed that very minute alterations in the concentration of the serum could be detected. In healthy serums the proportion of derivatives from the several endocrine albumins was not constant but the relation between the products of the various endocrines was constant. He held that rheumatic cases showed departures from this normal relation.

Dr. ANTON FISCHER (Landesbad Rheumatism Research Institute at Aachen) discussed alteration in the albuminous bodies of the serum from the standpoint that rheumatism was a general disease with undiscovered abnormalities of metabolism. The sedimentation test had clearly differentiated cases showing active and inflammatory processes of every kind, but he had found that non-febrile chronic polyarthritis gave very high sedimentation rates, although many had no inflammatory symptoms. The explanation of increased sedimentation had still to be determined. It now appeared, however, that this increase was accompanied by a chemical alteration in the white corpuscles, 80 per cent. of cases showing increase of globulin. There was consequently increase of tryptophan and corresponding diminution of cystin. Severe arthritis also showed increased viscosity of the serum. The increase in a chemically different globulin seemed a definite finding. The lowered sugar tolerance observed by Pemberton in acute inflammatory arthritis was associated in the Aachen findings with increased sedimentation rate, but no liver abnormality was discovered. With regard to other blood conditions in rheumatism, Dr. Fischer found no definite changes in acid-base equilibrium, although there was some diminution of the blood alkaline reserve in inflammatory cases. With Pemberton and Race he found normal values for

* See Acta Rheumatologica, Anno I., No. 3, October, 1929. Rotterdam: W. L. and J. Brusse's Uitgeversmaatschappij, N.V.

blood calcium, but observed no increase in excretion of sulphur with Cawadias, nor diminution of basic metabolism with Pemberton. He doubted the value of the Abderhalden method but spoke favourably of the possibilities of an immuno-diagnostic method.

Mr. JOSEPH RACE (Devonshire Hospital, Buxton) communicated some recent work showing that out of 166 cases of "rheum-arthritis" 68 had a count exceeding 9000 white blood cells, mainly leucocytes, but a number of cases had a low count. The latter were generally cases of long duration, showing a poor response to treatment. There was no leucocytosis in climacteric arthritis, and there appeared to be no correlation between increase of white cells and changes in suspension stability (V.S.). Cutaneous immunological tests had been made with filtrates from cultures of various streptococci, with negative results, but further work was eminently desirable.

THE LONDON MEDICAL EXHIBITION.

DRUGS AND PHARMACEUTICAL PREPARATIONS.

(*Continued from p. 895.*)

BOOTS PURE DRUG CO. (Nottingham) had a display of fine chemicals and pharmaceutical preparations, especially prominent being the arsenobenzol preparation approved by the Ministry of Health. Stabilarsan, for vein injection; Sulphostab for subcutaneous and intramuscular injection; and Bismostab, a sterile suspension of pure bismuth in glucose solution. In addition, Hexyl-Resorcinol in special gelatin capsules, liver extract for the treatment of pernicious anæmia, and Ephedrine for use in asthma and hay-fever were prominently displayed, some of them making an imposing show in large vases, while a variety of tablets and pills made an attractive exhibit. Gonococcus vaccines, Chlor-san, a scientifically produced hypochlorite antiseptic which can be used as an oral or a nasal wash and in the bath, a new product, also received attention.—OPPENHEIMER, SON AND CO., LTD. (59, Clapham-road, London, S.W.), had an attractive display of their well-known productions, including Roboleine, a vitamin food with maltose, diastase, nitrogenous and phosphoric compounds; Vitad, a purified unsaponifiable fraction of cod-liver oil; Citragon, for the treatment of gonorrhœa; and therapeutic ointments such as Ung. Renaglandin, hæmostatic and vasoconstrictive, and Ung. Renaglandin anæsthetic, which contains 5 per cent. eucaine lactate.—THE MOND STAFFORDSHIRE REFINING CO., LTD. (Abbey House, Westminster, S.W.), displayed their germicide, for which is claimed complete penetration and harmlessness to tissues with good healing action. Indicated in many skin diseases the preparation is put up in the form of liquid, ointment, and capsules for internal use. Throat pastilles, a soap, and a dental cream of attractive flavour are also among the preparations supplied by this firm.—DIMOL LABORATORIES, LTD. (40, Ludgate-hill, London, E.C.), showed their well-known bactericide, which is claimed to be 35 times more efficient than pure phenol. It is indicated in all bacterial invasions of the intestinal tract, does not produce any toxic effect, and is voided with the fæces. The preparation is put up in the form of pulverettes and is prepared as syrup, pastilles, lavage powder, ointment, and as a dentifrice. In the form of snuff it can be supplied in a neat mechanical bottle for the pocket, so that a prophylactic against nasal infection is always at hand. —BRITISH ALKALOIDS, LTD. (104, Winchester House, London, E.C.), demonstrated their T.C.P. (Trichlorophenylmethyliodosalicyl in H_2O) a powerful germicide which is analgesic, antithermic, keroplastic, non-hæmostatic, non-caustic, and non-toxic. Externally it promotes rapid healing and internally administered in the form of a colloidal emulsion it can be used in all forms of hyperchlorhydria, dysentery, enteritis, and arterio-sclerosis.—W. MARTINDALE (12, New Cavendish-street, London, W.) had a wide selection of pharmaceutical preparations very well displayed. Volume II. of the Extra Pharmacopœia, the nineteenth, which has just been issued, was frequently examined with approval as it is concerned with developments in investigations, experimental research, and diagnosis, and contains much new matter in connexion with all departments of medicine.—THE PINEOLEUM CO., INCORP. (New York City) (BROOKS AND WARBURTON (40–42, Lexington-street, London, W.)), demonstrated Pineoleum, an anodyne, emollient, and deodoriser having the following composition: menthol, 0·520 g.; camphor, 0·520 g.; ol. eucalyptus and glob., 0·520 g.; ol. Zeyland cinn. (Ceylon cinn.), 0·208 g.; ol. dac. cupr. (oil of pine needles), 1·041 g.; aromatics, qs.; liquid petrolatum, 100 c.cm.—WILCOX, JOZEAU AND CO. (51, Great St. Andrew-street, London, W.C.) exhibited many different preparations of Lactéol (Boucard), a lactic ferment, including tablets and liquid in ampoules for intestinal treatment, powder for surgical, nasal, and aural treatment, ovales for gynæcological treatment, and suppositories.—SANDOZ CHEMICAL WORKS (5, Wigmore-street, London, W.). Among the wide selection of pharmaceutical preparations exhibited at this stand may be mentioned Calcium-Sandoz, a calcium salt obtained from an oxidation product of glucose containing 13 per cent. of lime which corresponds to 9·3 per cent. of calcium; this may be given orally, intramuscularly, or intravenously; Allisatin Brand Tablets, a new and tasteless method of administering allium sativum; and Belladenal Brand Tablets, analgesic, anticonvulsive, and hypnotic.—EVANS, SONS, LESCHER AND WEBB, LTD. (50, Bartholomew-close, London, E.C., and 56, Hanover-street, Liverpool), divided their exhibit into three sections: (1) biological products, (2) special preparations, and (3) medicated soaps. The second section included Cascaromat, a concentrated elixir of cascara; Purgoids, small white sugar-coated tablets containing a combination of phenolphthalein, aloin, ipecac., and belladonna which are effective without griping; and Maraphos, a tonic food for children after exhausting illnesses.—CHAS. ZIMMERMANN AND CO. (9–10, St. Mary-at-Hill, London, E.C.) included in their exhibit Posterisan, a local vaccine from *B. coli communis* in the forms of ointment and suppositories for hæmorrhoids; Bilival "Ingelheim," a gall-stone preventive; Chinosol, a water-soluble non-poisonous antiseptic which does not irritate the skin; and Papain "Dega Brand," a digestive ferment active in any media, acid, alkaline, or neutral.—ROBERTS AND CO. (76, New Bond-street, London, W.) presented a number of useful pharmaceutical preparations, including Ferrigen, iron arsenate in ampoules for increasing the number of erythrocytes in anæmic conditions—this is also prepared with the addition of strychnine sulphate; Robuval, an elixir of strontium bromide with an inodorous fluid extract of vallerian, a nerve sedative: and Arcolax, specially selected and cleaned seeds of *Psyllium plantago*, for the treatment of habitual constipation.—THE ANGLO-FRENCH DRUG CO., LTD. (238A, Gray's Inn-road, London, W.C.), displayed a number of products of special interest, including Stannoxyl, Mycolactine, Iodobesin, and Orargol. Of particular note were the Bacte-Phages, the therapeutic bacteriophages of Prof. d'Herelle, available in various combinations for the treatment of bacillary dysentery, intestinal, respiratory tract, and purulent infections; Oleoformine, a cholagogue containing in tablet form cholic acid, hexamine, and sodium oleate; and Bakolyse, a solution of amino-acids and creatinin in ampoules for the treatment of tuberculosis and other states of denutrition.—MODERN PHARMACALS, LTD. (2, Calthorpe-street, London, W.C.), showed Tetrasthenol, an organic combination of iron, arsenic, glycerophosphate, and strychnine for subcutaneous injection in the treatment of anæmia, neurasthenia, and debility; Bicam, bismuth camphorate in ether washed olive oil, for the treatment of syphilis; and Sulfarsenol.—THE SACCHARIN

CORPORATION, LTD. (72, Oxford-Street, London, W.), displayed Novocain, a local anæsthetic for dental and surgical work; Trevalin, a substitute for morphia free from the toxic effect of morphia on the heart; and Caustiscin, for devitalising dental pulp. It is made in varying strengths to suit individual cases and it is claimed to be quite painless in application, while its use obviates arsenical periodontitis.—BRISTOL MYERS COMPANY (112, Cheapside, London). The chief exhibits on this stall were Sal Hepatica, a well-known effervescent laxative which encourages a daily habit by stimulating the biliary flow (it is announced that this preparation is not advertised to the public); Ziratol, an antiseptic of the naphthalene series having approximately three times the germicidal efficiency of carbolic acid while being free from toxic action; and Ipana, an effective tooth paste which contains Ziratol, and thus exercises a germicidal effect, while it hardens spongy and bleeding gums.—GENATOSAN, LTD. (Loughborough, Leicester), the makers of Sanatogen, Formamint, and Genasprin, included in their exhibit a full range of detoxicated and ordinary vaccines, including Anti-Coryza Vaccine Spray and an Anti-Diphtheria, Scarlet Fever, and Whooping-cough Spray for producing local immunity during epidemics. Attention was also drawn to Genozo Tooth Paste for the double purpose of beautifying the teeth and saving the gums.

ENDOCRINES, LTD., and E. H. SPICER AND CO., LTD. (72, Wigmore-street, and at Watford, Herts), showed a wide range of the "Harrower" endocrine preparations including Anabolin for the treatment of high blood pressure and Thymocrin for chronic psoriasis. Among "Homburg" preparations Salvochin and Transpulmin for use in pneumonia were also shown, as well as *B. acidophilus* Emulsion.—ARMOUR AND CO., LTD. (Armour House, St. Martin's-le-Grand, London, E.C.), presented a very attractive display of gland products under the specific name of "Glanoid." Particular attention was called to a concentrated fluid extract of liver, each ounce of which represents 8 oz. of fresh calf liver prepared while containing the natural animal heat.—THE BRITISH ORGANOTHERAPY CO., LTD. (22, Golden-square, London), exhibited a wide range of glandular products, monoglandular and pluriglandular, in the form of Opocaps, soluble capsules for oral administration, and Opojex, ampoules for hypodermic injection. Evatmine for asthma, hay-fever, urticaria, spasmodic affections, and chilblains was also shown, as well as Saccharomycin, a fluid yeast for boils, furunculosis, and acne.—G. W. CARNRICK CO. (Brooks and Warburton, Ltd., 40–42, Lexington-street, W.) displayed endocrine products emphasising the fact that only fresh glands from healthy animals are employed and that all desiccations are made at low temperatures in vacuo. Special attention was directed to a liver extract for the treatment of anæmia, to Incretone, a liquid endocrine tonic, and Hormotone for the relief of many distressing symptoms at the menopause.—CROOKES' COLLOSOLS (22, Chenies-street, London, W.C.) included in their exhibit, among other preparations, Collosol Argentum, Iodine, Calcium, Manganese, and a new combination of petroleum with Collosol Sulphur, presenting a laxative with intestinal disinfectant and deodorant properties.—C. J. HEWLETT AND SON, LTD. (35–42, Charlotte-street, and 83–85, Curtain-road, London, E.C.), showed Hæmorrhaline, an ointment for hæmorrhoids, external and internal; Hormonigen, pluriglandular extracts; Mist. Pepsinæ Co. c. Bismutho, a remedy in gastric disorders; and Evapogens, or medicated skin lotions. Surgical instruments, dressings, and sprays were also exhibited.—PETROLAGAR LABORATORIES, LTD. (Braydon-road, London, N.), presented their Petrolagar, an emulsion containing 65 per cent. of pure liquid paraffin and agar-agar, flavoured and palatable. The oil is atomised by hydraulic pressure in which state it is held by agar-agar. The preparation produces a normal soft, well-moulded intestinal mass.—NUJOL LABORATORIES (Albert-street, Camden Town, London, N.W.). The intestinal lubricant, Nujol, was here demonstrated as a rational and efficient method for the treatment of intestinal stasis, as well as Mistol, a combination of menthol, camphor, and eucalyptol with a pure mineral oil for inflammatory conditions of the nose and throat.—THE ANGIER CHEMICAL CO., LTD. (86, Clerkenwell-road, London, E.C.). Angier's Emulsion, which is petroleum with hypophosphites, is a bland and creamy preparation in perfect emulsion and can be administered in conditions where indicated either undiluted or in any desired beverage. Inquirers were supplied with a well-reasoned pamphlet on coughs and their treatment.—KAYLENE, LTD. (7, Mandeville-place, London, W.), exhibited a colloidally reversible hydrated silicate of alumnia in a state of ultra-microscopical subdivision known as Kaylene, an adsorbent of toxins and the products of putrefactive processes in the stomach and intestines, as well as Kaylene-ol for the elimination of the gastro-intestinal content, and other similar preparations.—VIROL, LTD. (Hanger-lane, Ealing, London). The composition of marrow-fat, glycerin extract of red bone-marrow, malt extract, eggs, lemon syrup, and salts of lime and iron known as Virol received much attention, as did also Virol and Milk in powder form, and Virolax, which is an emulsion of paraffin for use in intestinal toxæmia and its sequelæ.—BENGUÉ AND CO., LTD. (24, Fitzroy-street, London, W.), in addition to Dr. Bengué's Balsam for use in rheumatism, gout, neuralgia, and other conditions, showed Pulmo (Bailly), an organic combination of calcium, phosphorus, and guaiacol for diseases of the respiratory organs. Arhemapecty, a new blood coagulant, Guipsine containing the active principles of fresh mistletoe for arterio-sclerosis, and many other useful preparations.—DR. JOACHIM WIERNIK AND CO. (Berlin) (Coates and Cooper, 41, Great Tower-street, London, E.C.), manufacturers of the "Diwag" medical products, showed Pacyl, a derivative of cholin for administration per os for reducing blood pressure.—THE BATTLE CREEK FOOD CO. (Michigan, U.S.A.) (Coates and Cooper) showed biologic foods, including Lacto-Dextrine, being prepared for changing the intestinal flora by encouraging the growth of fermentative acid-forming bacteria, and Food Ferrin, a new iron food for which is claimed a remarkable efficiency in building up hæmoglobin; THE SICCO CHEMICAL WORKS (Berlin) (Coates and Cooper) exhibited the nutritive tonic food Siccopon, pure hæmoglobin in granule form to which is added lecithin, albumin, calcium lactate, and soluble silicic acid; and REED AND CARNRICK (Jersey City, N.J.) (Coates and Cooper), among other preparations, showed Testacoids containing the hormones or antacoids of the testicle and the active principles of the prostate; Pancrobilin for the treatment of constipation and obstipation; and Analeptine for the treatment of rheumatism, gout, and in uric acid diathesis.—TEMMLER CHEMICAL WORKS (Berlin) (Coates and Cooper) presented, among other preparations, Brosedan, a bromide bouillon indicated in epilepsy, extract of pine needles for bath treatments, and anti-conceptive tablets.—THE DENVER CHEMICAL MANUFACTURING CO. (London, E.) showed Antiphlogistine, for which the properties are claimed of continuous application of moist heat, osmosis, and a power of stimulating the cutaneous reflexes to assist in maintaining the blood and lymph circulation of the part affected while hastening the elimination of toxins.—BISODOL, LTD. (12, Chenies-street, London), exhibited an antacid-digestive under their trade name intended to re-establish the normal alkalinity of the body without danger of systemic disturbance. It contains bismuth submit., magnes. carb., sodium bicarb., carica papaya, diastase, and ol. menth. pip.

(To be concluded.)

HOLLOWAY SANATORIUM.—Lady Midleton, chairman of the Surrey County Nursing Association, recently opened a nurses' home in connexion with the Holloway Sanatorium at Virginia Water. It is a detached building with rooms for 75 nurses, and has cost £35,000.

Correspondence.

"Audi alteram partem."

WHAT BECOMES OF MEDICAL STUDENTS.

To the Editor of THE LANCET.

SIR,—The consternation with which Dr. Graham Little was filled at getting to grips with the subject of his lecture on The Health and Conditions of Work of Medical Students was in some respects an unnecessary emotion. Some years ago I analysed the lives and subsequent histories of the students at St. Thomas's Hospital over a period, and my paper was published in the *St. Thomas's Hospital Gazette*. Sir Squire Sprigge has done the same with regard to a large group of the students at St. George's Hospital.[1] Sir James Paget had previously traced the fate of a large number of St. Bartholomew's students, and with those figures alone was Dr. Graham Little familiar.—I am, Sir, yours faithfully,

EDRED M. CORNER.
Consulting Surgeon to St. Thomas's Hospital.
Beaconsfield, Bucks, Oct. 24th, 1929.

THE NATURE OF BACTERIOPHAGE

To the Editor of THE LANCET.

SIR,—The annotation entitled A Polyvalent Bacteriophage in your issue of Sept. 21st (p. 621) contains several statements which merit some discussion. To begin with, the title itself is subject to criticism. In spite of our lack of knowledge of the nature of the principle, it must be admitted that its action is more in the nature of a virulence. Valence applies only to the degree of combining power of an element or radical. Its biological use is not only rare but does not apply to the action of bacteriophage. Furthermore, the term polyvirulent has found favour among authorities on this subject. In a recent issue of the *Journal of the American Medical Association* an editorial appeared entitled Bacteriophagy as a Therapeutic Agent. Bacteriophagy is the name of an action and not of a substance. This tendency to misuse the terms applied to a now well-known principle is but an indication of the superficiality of the consideration given to a phenomenon, which may be considered as the outstanding contribution of a generation to the sciences of bacteriology and immunology.

Your annotation states "if the bacteriophage will act as a destructive agent of these organisms in vivo the discovery is of immense importance." It has been repeatedly demonstrated that bacteriophage will produce lysis in vivo, hence it may be admitted that the discovery is of immense importance. Does this provoke a widespread willingness to give the principle adequate clinical trial? The annotation further bewails the failure of investigators to perform the clinical experiments which "should not be difficult to devise." Those who have attempted to prove the theories which offer such exceptional promise for the therapeutic value of bacteriophage have not found it impossible to devise adequate experiments. The difficulty has been, and still is, to obtain the necessary clinical material. I venture to state that if any individual or organisation will furnish the opportunity and the means to carry on investigation of the type indicated the answer will not be difficult to obtain nor long delayed. In view of the unusual theoretical considerations, it would seem that the world is a bit slow in seizing the opportunity which has so long been waiting. I have previously expressed the opinion that the explanation for this tardiness lies in the fact that bacteriophages at present available are, for the most part, active against bacteria which do not produce epidemic diseases. This is only true to a limited extent. The problems of cholera and dysentery supply the lack. Such infections, however, are a serious problem only in countries where investigative work on bacteriophage is limited or absent.

There is another factor related to the bacteriophage problem which has been emphasised, as yet, only by myself—namely, the rôle of the bacterial proteins present in bacteriophage filtrates. It is not out of place to point out that bacteriophage as now used contains substances (bacterial proteins) which in themselves, on theoretical grounds, should prove, perhaps, even more effective than the bacteriophage itself. There is much to criticise in the therapeutic experiments thus far performed aside from the failure to provide adequate controls. The fact that any success, however apparent, has attended the use of bacteriophage is in itself an indication of its tremendous potentiality. There is nothing to indicate the size of the dosage nor the method of administration except some undependable therapeutic trials. It has been sufficiently demonstrated that dosage and method of administration are factors intimately concerned with the success of the treatment.

Finally, it may be argued that animal experimentation should provide an answer for some of these perplexing questions. This indeed might prove to be the case could there be found a naturally infectious animal disease of well recognised ætiology against the causative agent of which a bacteriophage was available. Such diseases have been found, but d'Herelle has been practically alone in investigating them. His results merit greater consideration. In the absence of suitable infections in laboratory animals it might be pointed out that where such diseases as cholera, plague, and dysentery occur on a large scale; where the only hindrance to clinical experiment is lack of funds and possibly of organisation; and where the proposed therapeutic agent has been repeatedly shown to be innocuous, there is no logical objection to applying the method. Those workers who have had the vision to carry on the work of bringing recognition to what promises to be an effective agent for the control of infectious disease only ask for an opportunity to provide the controlled experiments that the acceptance of the method demands.

I am, Sir, yours faithfully,

N. W. LARKUM,
Immunologist, Michigan Department of Health.
Oct. 3rd, 1929.

ASPIRATION DURING TONSILLECTOMY.

To the Editor of THE LANCET.

SIR,—In an annotation which appeared in your issue of Oct. 12th (p. 784) mention was made of the possibility of pulmonary infection caused by aspiration during tonsillectomy under general anæsthesia. This prompts me to accentuate the importance of posture during and after the administration of an anæsthetic. The possible danger of inhalation of blood and septic matter from the mouth through the epiglottis should be borne in mind, whether the case be one of general surgery or one concerning the various regions of the mouth alone. It would be best if the patient were never allowed for more than a few minutes to be flat on his back with his face to the ceiling, unless this position is imperative from the surgeon's point of view.

In the induction stage the patient will soon be sufficiently subjective to allow his head to be turned well to one side, and so obviate by gravitation the collection of fluid in the epiglottic region. This position is easily maintained without the use of a pillow for most operations, and in those on the mouth the patient's shoulders, after induction, should be raised sufficiently high on a sand-bag to necessitate a well-arranged and suitable hyperextension of the head to gravitate blood and debris immediately into the inverted upper posterior nasopharynx. This leaves the region of the epiglottis clear of blood and

[1] THE LANCET, 1905, i., 595. The name of the hospital was not given at the time.—ED. L.

saliva, while any excess of fluid can be swabbed out by the surgeon or his assistant from time to time, or by a suction apparatus if preferred, though this procedure is noisy and otherwise unpleasant.

After operation there should be no pillows used, nor should the position be any but the lateral with the head well hyperextended until vomiting or coughing occurs. After this the patient will not be liable to inhale any matter into his trachea. In transit from the operating theatre the patient should always be carried feet foremost if he is to be taken upstairs, and head downwards if going downstairs, for the same reason of keeping fluids and debris gravitating away from the region of the epiglottis, and also for maintaining by gravitation a good blood-supply to the reflex centres.

There is no apparent reason why the lateral position with hyperextension of the head and the use of no pillow should not be insisted upon, even in abdominal operations, the sitting-up position being substituted within 20 minutes or half an hour of the operation

I am, Sir, yours faithfully,

JOSEPH BIRT.

St. James' Court, Buckingham-gate, S.W., Oct. 18th, 1929.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—Accompanying a prospectus of a company formed, or about to be formed, for treatment centres for Electrotherapy, Physiotherapy, X ray diagnosis, &c., was a letter said to be addressed to the medical profession. On the back of that letter were two quotations from articles I had written, one in *The Lancet* of March 3rd, and the other in the *British Journal of Actinotherapy*. The use of my name is entirely unauthorised, and I have written to the secretary of the company protesting strongly against the publication of my name without my consent. I am, Sir, yours faithfully,

F. HOWARD HUMPHRIS.

Great Stanhope-street, Park-lane, W., Oct. 23rd, 1929.

THE MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY, LIMITED.

To the Editor of THE LANCET.

SIR,—Dr. Harvey Hilliard's letter in your issue of Oct. 5th (p. 744) raises an ethical question which should receive the careful consideration of all members of this Society.

First: Dr. Hilliard says, "Three important resolutions, of which due notice has been given, are to be moved at this meeting, but have been withheld from the agenda on the notice calling this meeting." In the report of the meeting in your issue of Oct. 12th (p. 798) I see that when Dr. Hilliard sent these to the office to be placed on the agenda of the meeting he was informed that they were matters arising out of the report and need not therefore appear on the agenda, a procedure approved by the legal advisers to the Society. Whether legal or not, surely it is not in the best interests of the Society as a whole that the motions of a member should be withheld in this way. Some might even consider it scandalous.

Secondly: As Dr. Hilliard points out, the board last year decided that they would not be justified in spending the Society's funds in sending out proxies to ensure the re-election of the directors retiring by rotation. They cannot, therefore, logically justify themselves for issuing proxies at the Society's expense this year. Their action in doing so is also the more unfortunate in that one of the motions was one fixing an age-limit of 65 years for directors. If this motion had been carried, four of the seven members of the board would have to retire. On the face of it, therefore, it might be interpreted as a deliberate attempt to keep themselves in office.

The resolution was withdrawn by the mover, Dr. Harvey Hilliard, who stated at the meeting that in his opinion the board had obtained their proxies under false pretences. He would not, therefore, submit his motion to what he considered an unfair vote.

No one would question the right of a board to issue proxies to protect itself as a whole against some attack upon its policy. If, on the other hand, the proxies were sent out to protect the interests of individual members, it is a volte face from the decision of last year.

If this practice is to continue, it seems that the average private member of the Society will never be able to contest the seats vacant upon rotation, because in his case he will have to finance the heavy expense necessary to obtain proxies, whereas the retiring members would be in the comfortable position of having their expenditure met from the Society's funds. Furthermore, the irony of the situation is that the board, in using the Society's funds is, in fact, using in part the candidate's own money deposited with the Society, to contest his election.

For this reason Mr. Steadman's candidature was not pressed to a poll, although he had received over 300 proxies. As one of his supporters, I do not feel that he received fair treatment.

I am, Sir, yours faithfully,

C. BOWDLER HENRY.

Harley-street, W., Oct. 22nd, 1929.

VACCINATION OR INOCULATION AGAINST SMALL-POX?

To the Editor of THE LANCET.

SIR,—In September, 1923, I vaccinated 285 persons (many of them under 18) with the same Government lymph with no ill-results, but the 286th (a girl of 15 years of age) died from encephalitis 15 days after a perfectly normal primary vaccination. The Committee on Vaccination, appointed by the Ministry of Health in 1926, have shown that vaccine virus is present in some brains of post-vaccinal encephalitis, but whether it is associated with some other agent is not quite clear at present. Yet the fact that the vaccine virus has been isolated from some brains of those who have died from post-vaccinal encephalitis naturally raises the question of the danger of using a living virus in vaccination work.

The recommendation of the Committee that vaccination shall be in "one insertion with a minimum of trauma" instead of four insertions has been adopted and recommended by the Minister of Health. It *may* be that this will diminish the risk of post-vaccinal encephalitis, and it would be interesting to know what are the statistics in America where this has been the practice for years, but one is inclined to query the advisability of using a *living* virus at all. We should hesitate to use living staphylococcus or streptococcus however dilute even in one insertion. In the summary of the Committee on Vaccination it is suggested that further research is desirable in exploring the possibilities of the use of a still further attentuated or of a killed virus as an immunising agent. It would be a great relief both to the community and to vaccinators if a killed virus was available for inoculation in place of the living virus as used in ordinary vaccination.

May I ask, through your columns, whether any experiments have been or are being done with the killed virus of vaccinia. Is it possible to produce immunity against small-pox by inoculation of a killed virus?—I am, Sir, yours faithfully,

Oxford, Oct. 26th, 1929. HENRY T. GILLETT.

*** Post-vaccinal encephalitis is rare in the United States; our correspondent remarked a fortnight ago that only four cases had been reported. Little has been published on the use of killed vaccinia virus as a prophylactic; the results of its use so far seem to have been almost negative, and nothing encouraging has come from the more recent attempts. It is true that preventive vaccines of some other viruses have

proved effective experimentally even when the vaccine has been made from virus which has been killed. In some cases, too, a killed vaccine has proved effective in practice when a dose of living virus has been given subsequently and a mild attack of the disease has thus been induced. In some infections including rabies, distemper, foot-and-mouth disease, and fowl plague, a killed vaccine has by itself conferred immunity, but only for a short time. It may be added that a stock of real small-pox virus would be difficult to obtain, and it would need to be free from other chance human diseases.—ED. L.

CONTAGIOUS ABORTION.

To the Editor of THE LANCET.

SIR,—Several references to contagious abortion in cattle and man are found in your recent issues. Rather less than 20 years ago, I think it was, this disease caused dire losses among dairy herds in parts of New Zealand. The United States had suffered previously and from there much instruction was available. It became recognised that an important contributory factor to the disease was insufficient provision of winter feed, leading to debility in the mother just when the calf in utero was making full demands on her constitution. Your authorities emphasise the digestive route of infection; it is an obvious route, but I question whether, once the disease is introduced to the herd, coitus may not be a method of transmission also.

About sixteen years ago in the Auckland province I attended a young primiparous woman for abortion. Her husband was slaughterman in a local butchery, and I knew that a large proportion of the beasts dealt with by him were cows fattened in consequence of sterility, proved or anticipated, following contagious abortion. As there was no other ascertainable cause for abortion in the fairly advanced stage of pregnancy of the patient, I attributed it at the time to contagious abortion transmitted from the cows through her husband. I had no reason to suppose him to be constitutionally affected by the disease.

I may add that the epidemic did good in bringing about a general improvement in method of winter feeding of dairy stock, and the disease is now a much less serious factor than at that time. A chair and teaching to exploit the relationship in disease of man and the lower animals would, I believe, prove of unimagined importance, and lead to wide revision of our social and sanitary methods and new angles of prevention and treatment.

I am, Sir, yours faithfully,

A. H. HALLEN, M.D. Edin.

Alexandra-road, South Hampstead, N.W., Oct. 27th, 1929.

THE BROWN *v.* WHITE BREAD CONTROVERSY.

To the Editor of THE LANCET.

SIR,—As one of the protagonists of whole-meal bread might I suggest that the Medical Research Council finance another series of tests on the respective values of whole-meal and white flour. In this series let the experimenters use a diet similar to that on which millions of our poorer workers in the industrial and mining centres seek to exist. Those who conducted the demonstration on the values of artificial sunlight at the Mansfield Colliery inquired into the feeding habits of the pit boys, and were amazed at the few who ever had fresh vegetables or fruit, the main articles at each meal being white bread, margarine, and tea.

It is well known to all interested in social welfare work that the expectation of life and freedom from disease are very great amongst agricultural labourers, and it is equally appreciated that they have an abundance of Nature's foods. On the other hand, the majority of poorer workers in our crowded areas have very little fresh vegetables or fruit, the bulk of their diet being white bread and preserved foods, all deficient in vitamins. When we reach a stage in which they are able to secure such a varied dietary as the one on which Dr. Hartwell and Prof. Mottram fed their rats, we shall not have the same anxiety as we have to-day about their feeding; but till that fortunate day arrives, I am of opinion that legal action should be taken to ensure that the poor shall have bread in the condition our ancestors were able to obtain it—i.e., with the most valuable vitamins and minerals still in it. I am also certain that the results of the experiment I suggest will prove on the side of brown bread.

I am, Sir, yours faithfully,

BRUCE BRUCE-PORTER.

Grosvenor-street, W., Oct. 26th, 1929.

To the Editor of THE LANCET.

SIR,—There are many like myself convinced believers in the superior nutritional value of whole-meal flour from clinical observation, who must feel sceptical as to the validity of the conclusions drawn by Prof. Mottram and Miss Hartwell from the recent experiments reported in your issue of Oct. 26th. It is surely an accepted fact by all students of nutrition that the various vitamins can only function adequately when the *general balance* of vitamins and other food factors is correct. In these experiments the test diets are, by their own showing, defective on other grounds, and therefore it would seem that the addition of vitamin B to one of them could not be expected to effect any improvement. The absence of a sufficiency of vitamin A alone would deter normal growth and seriously affect the health of the animal.

I venture to hope that experts who hold opposing views to those of Mottram and Hartwell will feel inclined to give the profession their views on these experiments. The clinicians are looking in vain for definite guidance on this vexed question.

I am, Sir, yours faithfully,

S. HENNING BELFRAGE.

Gloucester-place, W., Oct. 29th, 1929.

CLEAN SWIMMING BATHS.

To the Editor of THE LANCET.

SIR,—Belated though it is I greet with pleasure the report of the Ministry of Health on the Purification of the Water of Swimming Baths, which you annotated last week. I regret, however, that no mention has been made in the report of the strenuous, difficult, and prolonged pioneering work carried out at Poplar for over 20 years. Special reports of this work were always forwarded, in accordance with legal requirements, to the Ministry of Health, and it is these which, without doubt, form the basis of the report just issued.

I am, Sir, yours faithfully,

FREDK. WM. ALEXANDER,
Formerly Medical Officer of Health,
Oct. 26th, 1929. Metropolitan Borough of Poplar.

DUBLIN UNIVERSITY BIOLOGICAL ASSOCIATION.—The opening meeting of the session of this Association was held on Oct. 19th, when the President-elect, Prof. J. Brontë Gatenby, delivered an address on Radium, X Rays, and the Cell. He gave a careful survey of the knowledge of the action of rays on the cell, and related the results of experimental work done in his own laboratory. Prof. John Joly, F.R.S., gave an account of the pioneer work done in Dublin by the use of hollow needles containing radium or radium emanation in treatment, and described recent developments in needle technique. Dr. R. J. Ludford described his work at the Imperial Cancer Research laboratories on the cancer cell. Dr. W. C. Stevenson, Prof. M. R. J. Hayes, Sir William Wheeler, Prof. L. Abrahamson, and Prof. T. G. Moorhead spoke of the several applications of radium and other rays in medical and surgical treatment.

Obituary.

WILLIAM BEVAN-LEWIS, M.Sc. LEEDS, M.R.C.S., L.S.A.,

LATE DIRECTOR OF THE WEST RIDING HOSPITAL, WAKEFIELD.

WE regret to announce the death of Dr. William Bevan-Lewis, the well-known authority on mental disease and its pathology, which occurred on Monday, Oct. 14th, at Cardigan, in the eighty-third year of his age.

William Bevan-Lewis was the son of William T. Lewis, of Cardigan, in which city he was born in 1847, and received his early education. In 1864 he joined the medical school at Guy's Hospital, where, among the prominent members of the staff were then Sir William Gull and Henry Cock, while Wilks, Pavy, and Bryant were junior members. Bevan-Lewis was a distinguished student, being a prize-man throughout his career in the preliminary scientific and clinical subjects, and had to wait until his arrival at the age of 21 before he qualified in 1868 as M.R.C.S. Eng. and L.S.A. He would no doubt have gone far, both in professional and academic life in the metropolis, if an early marriage had not determined his choice of immediate private practice. In 1875, however, an opportunity came to him to pursue scientific studies towards which he had a particular impulse rare in those days, for few medical men half a century ago could have regarded an appointment at a lunatic asylum as offering great scientific opportunities. But with this view Bevan-Lewis, at the age of 28, joined the medical staff of the West Riding or Wakefield Mental Hospital, an institution which had been established some 60 years, and which had already obtained a reputation for the psychological study of its inmates. The medical school at Leeds was only ten miles away, and at Wakefield Ferrier did much of the work which resulted in the publication of his experimental researches in cerebral physiology, while Clifford Allbutt also studied there with fruitful result. Further, two of Bevan-Lewis's predecessors at Wakefield had been distinguished for their scientific output in relation to insanity—namely, the late Dr. H. C. Major, whose work on the histology of the brain in the insane was of real importance both in accomplishment and suggestion, and Sir James Crichton-Browne, the veteran psychologist. In going to Wakefield, therefore, Bevan-Lewis was treading in distinguished footsteps, and he was immediately confirmed in the career which he had adopted. He rose rapidly, first to be pathologist to the hospital, then to be deputy superintendent, and in 1884 he became medical director of the institution. This post he did not resign till 1910, thus completing 35 years of service, 26 of which were spent in the position of the highest responsibility.

DR. BEVAN-LEWIS.

Of Bevan-Lewis's ideals as to what such a post as medical superintendent of a large asylum should mean, there is no doubt alike from the results of his work and the recollections of the many who worked with and under him. From each and all there emerges the same picture of a man whose heart was in his researches, and whose inclination directed him towards the teaching and writing of the knowledge which he had to deliver, but conscientiousness and discrimination alike urged him to devote attention to the organising side of his duties. For he knew that if the advancement of psychology and pathology in relation to insanity were to be obtained, the sure way would be by the intimate study of the subjects of investigation placed beneath his hand. Hence the administrative side of his work was fruitful, including the starting of an out-patient department (then quite a novelty), the reconstruction of the pathological laboratory, the provision of separate wards for the treatment of imbecile cases, and the institution of a well-equipped block for the reception of early cases of mental disease.

While these things would have been sufficient to secure for Bevan-Lewis a high position in his specialty, his memory will be better preserved by his writings and teachings, which expressed the results of his personal and assiduous researches. He was for 25 years lecturer and examiner in mental disease at the University of Leeds, succeeding Crichton-Browne and Major in this post, which later, on the rise of the Leeds school of medicine into a University Faculty, became a professorship. In 1889 he published his well-known text-book of mental diseases, in which he proposed to record the existing knowledge of the pathological aspects of insanity. In this exhaustive work he was stimulated and supported not only by a recurrent staff of interested fellow-workers, but by the presence, as visitors to Wakefield, of a constant influx of young collaborators. This work was recognised on its appearance as practically the first attempt to present in the field of English psychological medicine a résumé of our knowledge of morbid changes in the brain of the insane. It was founded largely on original research, and illustrated with exceptionally good plates, and it was seen at once to supply defects in the treatises, for example, of Bucknill, Tuke, and Clouston. The book was reprinted ten years later, and, although in certain respects the contents were modified, its individual character remained, and this to such an extent that it was easy to hold that work done by others during the interval had not been sufficiently taken into account. But the author's scheme of presentation was simple and serviceable from a psychological standpoint, while, as a matter of fact, certain of the main theories as to minute structure which, when first made seemed to be incompatible with results obtained by experiment, have been since demonstrated by Sir Charles Sherrington and his followers as accurate. Thus and for nearly 30 years Bevan-Lewis had the satisfaction of coming into his own.

Prof. J. Shaw Bolton, Medical Director of the West Riding Hospital, writes:—"I feel doubtfully qualified to write even a brief psychological sketch of the great neurologist whom I succeeded at Wakefield Mental Hospital 19 years ago, for I saw Bevan-Lewis on the day of my election and on no other occasion. I remember vividly my interview with him in his drawing-room, now a dormitory of the institution. He was not in the least the man I had often pictured to myself during the 20 years I had been familiar with his work and reputation, and whose beautiful drawings of the cortex cerebri had first attracted my attention to neurology. He was quiet, dignified, and reserved, and though perfectly courteous, neither volunteered nor provided any information of value regarding the institution and my new duties. I could fully appreciate his point of view. I was a

stranger about to undertake the work he was laying down and of which he was jealously proud; and his main object was to obtain the best terms possible for the staff he was leaving behind him. I parted from him with regret, feeling certain that I should never see him again. I wrote later asking if I could come over before he left Wakefield, but he replied that it was not necessary and that I should find everything in perfect order. A lengthy residence in Wakefield has satisfied me of the truth of this description of a mere interview as a picture of the mentality of Bevan-Lewis. He was an enthusiast, and a recluse with few interests beyond his scientific investigations. He was retiring and aloof, and rarely to be seen or interviewed, but this very attitude towards others, which might have led lesser men to be ignored, in the case of Bevan-Lewis was a powerful factor in the success of his administration. For he was successful, and during his 26 years as medical director he saw, and took a prominent part in, administrative changes and extensions which taken alone would have gained him a high reputation. He witnessed the opening of Menston and Storthes Hall Mental Hospitals, and the planning, building and early years of working of a new mental hospital attached to the Wakefield Asylum of old. He held views on mental hospital evolution which were almost prophetic. As early as 1889 he founded at Wakefield an out-patient department which is still flourishing, and during many years, until in fact the opening of Scalebor Park Mental Hospital rendered the step unnecessary, he provided private mental nurses to the district. Referring in 1889 to the proposal, under the auspices of the London County Council, to erect an acute hospital, providing accommodation for 100 patients, to appoint a staff of experienced visiting physicians, and to establish in connexion therewith a school for the scientific study of mental disease, he remarked:

'It must be admitted that the tendency to the establishment of the hospital system is the correct one, and that this end will be eventually realised. Within the metropolitan area the conditions are so peculiarly favourable to its development that one is surprised at the limited accommodation proposed by its advocates; but as applicable to the provinces, the difficulties of applying the system are obvious, and a modified procedure is necessarily demanded. That the large country asylums should eventually become receptacles for the hopelessly incurable chronic class, officered and managed upon a far more economical system than the present; that special hospitals for dealing with the acute insane, with a well-trained staff of experienced alienists, and affording facilities for a development of clinical teaching should be instituted; and that they should contain centres for scientific investigation and research, are facts so self-evident as to require no further emphasis here.'

"These views found expression in Bevan-Lewis's administration during the next 20 years. He left the chronic block as he found it, an antiquated building surrounded by high walls, and it is doubtful whether he even noticed its sanitary defects, so endeared to him was every brick of Wakefield. In 1900, however, he witnessed the opening of the acute hospital, a modern building replete with what were at that time unique means for research and methods of scientific treatment. This hospital contained a large lecture hall and library and several laboratories, and it possessed extensive provision for electro- and hydro-therapeutic methods of treatment. I believe that to a great extent the new hospital realised Bevan-Lewis's ideal, although its completion came too late to enable him with his enfeebled health adequately to administer it. Bevan-Lewis lived and worked in a world apart, and if he felt and resented the belated recognition accorded to his work on cortical localisation no one knew it. He justly acquired a great scientific reputation, and his position as a neurologist of the highest rank is now at its acme, when it is universally acknowledged that much of his best work waited for a quarter of a century for confirmation and acceptance."

In 1909 Dr. Bevan-Lewis was president of the Royal Medico-Psychological Association, but otherwise, owing partly to early want of recognition and partly to his own retiring disposition, he escaped all public acknowledgment for his valuable services to science and society. He received his reward, and to him it appeared a satisfactory one, in the grateful regard which he obtained from pupils, many of whom became well known and successful in their careers. Throughout his work at Wakefield he was assisted by a devoted wife, Rose Eve, the eldest daughter of Mr. W. C. Kaye, of Enfield, whom he had married when he was only 23 years of age. The loss of his wife occurred some years after his retirement from Wakefield, and was one from which he never recovered. He had no children.

THE NEW TREATMENT FOR BURNS.

A REPORT ON TANNIC ACID.

MANY substances have been used for burns since the time when carron oil was discarded from domestic medicine cupboards. The search has always been for an easily applied dressing that will not only relieve pain and mitigate shock but will have some antiseptic properties and will not require frequent changes. The substances found to have at least some of these desirable qualities vary widely, not only in composition but in physical properties. Among these powdered sodium bicarbonate, ointments spead on lint, paraffin wax applied with a spray, and liquids such as picric acid have had their supporters. It seems probable that these applications will all be replaced as routine methods of treatment by the use of tannic acid, the introduction of which is described by the Medical Research Council as "one of the most important recent advances that have been made in modern therapeutics."[1] Since Dr. E. C. Davidson, of the Henry Ford Hospital in Detroit, first advocated this method four years ago,[2] we have had evidence from various sources substantiating his good results.[3] These have now been confirmed by Mr. W. C. Wilson, who is able to report a consecutive series of 117 cases treated by this method in the department of surgery of the University of Edinburgh. The death-rate from all causes in this series was 11·1 per cent., the mortality in 105 children under 10 years of age being 10·5 per cent. compared with 38·7 per cent. in a series of comparable cases treated by other methods. The tannic acid is used in aqueous solution, which should be freshly prepared for each case (though not necessarily for each application), since after some weeks tannic acid in solution is changed to gallic acid, which has no power to coagulate protein.

The strength recommended is a 2·5 per cent. solution in warm sterile water, sprayed on the affected area, which has been gently cleansed with ether under a general anæsthetic, preferably gas and oxygen. An ordinary nasal spray atomiser can be used and the parts dried by means of electric lamp bulbs in the bed-cage or by a current of hot air from an electric drier. Spraying and drying are carried out at intervals of one hour till the parts are covered with a thin brown layer of coagulated tissue. This usually appears in burns of the second and third degrees after from 8 to 12 applications. In deeper lesions, and also when there is much exudation of serum from the raw surface, further applications may be required to procure a satisfactory coagulum. There is no danger of a too deep corrosive action when a weak solution is used.

In burns of the face the eyes, nostrils, and external auditory meatus are protected with moist wool during spraying.

Local Effects after Treatment.

After the first few applications pain is relieved and disappears. The parts rapidly become insensitive and subsequent spraying causes no discomfort.

[1] The Tannic Acid Treatment of Burns. By W. C. Wilson. Medical Research Council, Special Report Series No. 141. London: H.M. Stationery Office. 1929. Pp. 34. 1s.
[2] Surg., Gyn., and Obstet., 1925, xli., 202.
[3] See THE LANCET, 1928, i., 336 and 351.

The thin brown leathery coagulated layer can be handled freely without risk of conveying infection to the underlying tissues, and its rigid splint-like character ensures the best conditions for the healing processes beneath it. In uncomplicated cases the coagulum should be left until it peels off readily, which it will do within two or three weeks in lesions of the second or third degrees. Areas still uncovered by epithelium are protected by sterile vaseline applied on strips of gauze.

Sepsis.—When sepsis is suspected, from the reddening of the surrounding skin or from the presence of a little sero-purulent discharge from the edge of the coagulum, no special treatment is necessary if the patient's general condition remains satisfactory. Gross infection, which rarely occurs except in association with the formation of sloughs in deep burns, leads to the formation of a collection of pus. The coagulum is pushed up by this pus and can usually be stripped off easily: if it continues to adhere firmly it can be cut away with scissors. In no circumstances should wet dressings be applied over the coagulum.

The provisional instructions for the first-aid treatment of burns by tannic acid will be set out in our columns next week.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 19TH, 1929.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 154 (last week 131); scarlet fever, 3549; diphtheria, 1582; enteric fever, 140 (last week 104); pneumonia, 1042; puerperal fever, 53; puerperal pyrexia, 124; cerebro-spinal fever, 6; acute poliomyelitis, 23; acute polio-encephalitis, 2; encephalitis lethargica, 9; continued fever, 1; dysentery, 10; ophthalmia neonatorum, 112. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on Oct. 22nd-23rd was as follows:—Small-pox 163 under treatment, 9 under observation (last week 166 and 3 respectively); scarlet fever, 2464; diphtheria, 2242; enteric fever, 69 (last week 39); measles, 186; whooping-cough, 131; puerperal fever, 23 (plus 13 babies); encephalitis lethargica, 126; poliomyelitis, 8; "other diseases," 20. At St. Margaret's Hospital there were 16 babies (plus 8 mothers) with ophthalmia neonatorum.

Of the notifications of enteric fever, 30 were received from the County of London—namely, Hackney, Islington, Lambeth, Paddington, St. Marylebone, Wandsworth, and Westminster each 1, Stepney 2, and Lewisham 21.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 7 (3) from enteric fever, 14 (0) from measles, 8 (2) from scarlet fever, 13 (1) from whooping-cough, 31 (6) from diphtheria, 136 (35) from diarrhœa and enteritis under two years, and 40 (7) from influenza. The figures in parentheses are those for London itself.

Deaths from diarrhœa are now definitely on the decline, the highest figures being reported from Liverpool 11, Birmingham 9, and Leeds 5, while Glasgow and Dublin report 8 each. The deaths from enteric fever outside London were reported from Bournemouth, Bristol, Salford, and Leeds 1 each: the 4 deaths in London occurred at Lewisham, where the outbreak to date (Oct. 29th) amounts to 64 cases with 5 deaths.

The number of stillbirths notified during the week was 257 (corresponding to a rate of 39 per 1000 births), including 48 in London.

VETERINARY RESEARCH AT LIVERPOOL.—The University has received £10,000 for research to be conducted under the direction of the William Prescott Professor in the Department of Veterinary Pathology. This sum represents contributions of £6000 and £3000 from two anonymous donors, and £1000 from Messrs. R. Silcock and Sons, Ltd., of Liverpool.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

REASSEMBLY OF PARLIAMENT.

BOTH Houses of Parliament reassembled for the autumn session on Tuesday, Oct. 29th. The Government have in hand a considerable programme of legislation which they intend to pass before the Prorogation next July. Among the more important Bills are two dealing with Slum Clearance and Reform of the Factory Laws. These measures are likely to be introduced before Christmas, but it will depend upon the progress made with other Bills whether they proceed any further before the reassembling of Parliament early in the New Year.

The Government's Programme.

Mr. SNOWDEN, in announcing the Government's programme of business, said that it was proposed to proceed with the Unemployment Insurance Bill before the Christmas adjournment. It was hoped to make progress with other measures foreshadowed in the King's Speech, including the Factories Bill, to regulate hours of industrial employment. The financial resolution in connexion with the Highlands and Islands Medical Services (Additional Grants) Bill would be placed on the Order Paper on the following day, and a White Paper would also be available.

Notices of Motion.

In the ballot for notices of motion Lieut.-Colonel FREMANTLE gave notice that to-morrow week (Nov. 6th) he would call attention to ribbon development and move a resolution. Mr. T. HENDERSON also gave notice of a motion on the nationalisation of water-supply.

HOUSE OF COMMONS.

TUESDAY, OCT. 29TH.

Voluntary Hospitals and Motor Accidents.

Sir WILLIAM DAVISON asked the Minister of Transport whether, in view of the serious cost and difficulties thrown on voluntary hospitals throughout the country in the receiving and treating of persons suffering from motor accidents, and also in view of the fact that in very many cases no payment is made to the hospital in question by such persons for their treatment in the hospital, His Majesty's Government would consider the propriety of raising a central fund by means of a small deduction from driving licences, or otherwise, with a view to adequate payments being made to voluntary hospitals who are unable to obtain payment for services rendered in the case of motor accidents.—Mr. HERBERT MORRISON replied: I do not feel justified in recommending the legislation which would be required to impose a compulsory levy on the drivers of all motor vehicles for this purpose.

Sir WILLIAM DAVISON asked if the Minister of Transport did not recognise the serious position that many hospitals were in by reason of their often keeping a special ward, particularly in the country, to deal with motor accidents which interfered with the normal work of the hospitals, and was a great expense to them, when they were already finding it difficult to pay their way. He also asked if the Minister could not introduce some clause at any rate in the legislation which he had promised with regard to third-party insurance, which would deal with this matter.—Mr. MORRISON replied that they all recognised the financial difficulties of voluntary hospitals, but he was unable to agree that that was a question which exclusively related to the services required from the hospitals by motorists.

Mr. THURTLE asked if one of the remedies in this matter would not be for motorists to take more care.

Mr. ALBERY asked the Minister to consider the propriety of approaching the Automobile Association and the Royal Automobile Club with the suggestion that they should try to devise some means of collecting these sums for the hospitals.—Mr. MORRISON replied that there was no reason to believe that motorists as a class were less generous in their contributions towards the hospitals than any other section of the community, and it would be difficult to single them out from other users of the hospitals.

Mr. LOUIS SMITH asked the Home Secretary if he would obtain information from the police of the country of the number of accidents treated in local hospitals and resulting from the use of motors during the months from April to the middle of October, with the object of ascertaining the burden now placed on those institutions.—Mr. CLYNES replied: I have consulted my right hon. friend the Minister of Health, and am advised that the collection of the figures

the hon. Member mentions would not secure the object he has in view; and as the figures could not be obtained without imposing great labour on the police, out of all proportion to the usefulness of any results that can be anticipated, I regret that I do not see my way to ask the police to furnish them.

Government and Slum Clearance.

Lieut.-Colonel FREMANTLE asked Mr. Snowden, Chancellor of the Exchequer (who is acting for the Prime Minister) whether the much-promised measure for slum clearance was included in what the right hon. gentleman called "minor Bills," or if it was not considered of sufficient importance to be introduced before Christmas.—Mr. SNOWDEN replied that he certainly would not include the Slum Clearance Bill among the minor measures to which he had referred. He hoped that when the Bill was introduced it would be recognised that it was a Bill of first-rate importance. The programme which the Government had outlined, and which they hoped to get through with the assistance of the Opposition, so far as their proposals met with approval, was rather ambitious. He could assure the House that the Slum Clearance Bill would be taken as soon as Parliamentary time permitted.

Procedure at Coroners' Inquests.

Sir KINGSLEY WOOD asked the Home Secretary whether he was aware of the considerable public apprehension concerning the recent conduct and procedure of certain coroners' inquests, particularly in relation to the ancient and well-established rights and liberties of the subject, and whether he could make any proposals or statement to the House on the matter.—Mr. CLYNES replied: I am obliged to the right hon. gentleman for his courtesy in giving me long notice of this question, and thus affording me the opportunity of consulting with my noble friend, the Lord Chancellor, and my hon. and learned friend, the Attorney-General, upon the legal aspects of the matter. As the right hon. gentleman is no doubt aware, the law relating to coroners' inquests was revised and brought up to date by a comprehensive measure passed only three years ago. The view in which the authorities I have consulted concur is that it would be a mistake so soon after the revision of the law to consider making another fundamental alteration because of what has happened in one or two quite exceptional cases. The provision under which coroners pursue their inquiries up to the point of enabling the jury to find the persons, if any, who have been guilty of murder or manslaughter, embodies the ancient common law of England. Having regard to the number of inquests held every year—over 30,000 in 1927—the criticisms of the working of this provision have been remarkably few, and, on the other hand, there have been very many cases in which its value has been clearly demonstrated. I propose, therefore, as at present advised, to take no action in the matter.

War Pensioners and Seven Years' Limit.

Mr. DAY asked the Minister of Pensions whether he was now in a position to make an announcement with reference to the Government's attitude regarding the abolition of the seven years' limit with reference to ex-Service men; and whether it was proposed to obtain powers to remove other pension grievances, including the amendments to the final awards regulations in the case of war orphans.—Mr. F. O. ROBERTS replied: I expect to be able very shortly to make a full statement on the point raised in the first part of the question. I am at the same time giving close attention to all difficulties that have been put before me in connexion with the administration of war pensions, and I shall do what is possible from time to time to remedy them.

University Graduates and Choice of a Career.

Mr. GRAHAM WHITE asked the Minister of Labour if she would circulate to the proper authorities at the universities periodical reviews of the various branches of industry and the professions, in order that undergraduates might be enabled to make plans for their future at a suitable time.—Miss BONDFIELD replied: The hon. Member is perhaps aware that my department, in collaboration with the Incorporated Associations of Headmasters and Headmistresses, recently began to issue through H.M. Stationery Office a series of pamphlets on the choice of careers. Copies of these are being sent to University Appointments Boards and to all secondary schools on the "recognised" list of the Board of Education. I will gladly supply the hon. Member with a list of these pamphlets so far as they have been completed, if he so desires.

Administration of the Factory Acts.

Mr. GRAHAM WHITE asked the Prime Minister if it was the intention of the Government to transfer the administration of the Factory Acts to the Ministry of Labour.—Mr. SNOWDEN replied: This matter has not been under the consideration of the Government.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates were successful:—

Surgery.—A. Buch and R. F. M. Child, St. Mary's Hosp.; V. J. H. Coidan, Beyrout; R. W. Goldsbrough, Leeds; A. Guirdham, Charing Cross Hosp.; H. C. Halge, St. Mary's Hosp.; G. A. F. Holloway and A. Kellner, London Hosp.; and R. K. Nandlal, Birmingham.

Medicine.—W. T. Ellis, Manchester and Charing Cross Hosp.; W. J. Frith, London Hosp.; A. Guirdham, Charing Cross Hosp.; W. M. Hamer, Manchester and Charing Cross Hosp.; W. St. A. Hendricks and R. J. Kagan, St. Mary's Hosp.; H. W. Maurer, Charing Cross Hosp.; T. M. White, Bristol; and F. A. Yarde, St. Mary's Hosp.

Forensic Medicine.—A. N. De Monte, St. Mary's Hosp.; W. J. Frith, London Hosp.; B. C. Ghose, Durham; R. Gilmore, Manchester; A. Guirdham, Charing Cross Hosp.; W. St. A. Hendricks, St. Mary's Hosp.; G. A. F. Holloway, London Hosp.; C. Hortop and A. D. H. Hugo, Guy's Hosp.; A. Liberis, St. Bart.'s Hosp.; W. McDermott, London Hosp.; J. E. Moody, St. Mary's Hosp.; L. J. Pearson, Birmingham; T. G. Robinson, Guy's Hosp.; L. C. H. Sykes, Leeds; and F. A. Yarde, St. Mary's Hosp.

Midwifery.—M. Asaad and R. F. M. Child, St. Mary's Hosp.; A. Clark, Glasgow and London Hosp.; C. E. P. Davies, Guy's Hosp.; A. N. De Monte, St. Mary's Hosp.; H. R. Fosbery, Middlesex Hosp.; A. Guirdham, Charing Cross Hosp.; J. E. R. Heppolette, St. Mary's Hosp.; G. A. F. Holloway, London Hosp.; D. W. Hoodless, Charing Cross Hosp.; V. J. Lopez, St. Mary's Hosp.; W. McDermott, London Hosp.; L. J. Pearson, Birmingham; and S. Ramadas, St. George's Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: A. Clark, A. N. De Monte, W. T. Ellis, R. W. Goldsbrough, A. Guirdham, W. M. Hamer, W. St. A. Hendricks, G. A. F. Holloway, C. Hortop, W. McDermott, and T. M. White.

UNIVERSITY OF EDINBURGH.—At a graduation ceremonial on Oct. 26th the following diplomas were conferred:—

D.P.H.—H. J. Gibson, *David Lennox, *K. A. T. Martin, Sarup Narain and N. S. Turnbull.

* In absentia.

UNIVERSITY OF SYDNEY.—Dr. H. Whitridge Davies, who for the last three years has been lecturer in physiology and pharmacology in the University of Leeds, has been appointed to the Chair of Physiology at the University of Sydney.

Dr. Davies is an Australian by birth, and is the son of Mr. Harold Davies, professor of music at the University of Adelaide. After graduating at Adelaide, he came to Europe with the Australian Army Medical Corps, and served in France. He subsequently became research assistant to Dr. J. S. Haldane, at Oxford, and in 1921 he worked in the Department of Therapeutics in the University of Edinburgh under Prof. Jonathan Meakins. Later he spent a year at the Rockefeller Institute, New York.

RADIOLOGICAL CONGRESS IN LONDON.—The annual congress of the British Institute of Radiology, incorporated with the Röntgen Society, will be held at the Central Hall, Westminster, from Dec. 4th to 6th. There will be a trade exhibition of X ray apparatus. The Silvanus Thompson and Mackenzie Davidson memorial lectures and other addresses will be given in the Congress Hall adjoining the exhibition.

LORD MOYNIHAN ON VOLUNTARY HOSPITALS.—Speaking at Dewsbury on Oct. 15th, Lord Moynihan said he believed we had now arrived at the most critical period in the history of hospital administration in this country. Hitherto it had required a confession of pauperism to allow a patient to receive benefit from the poor-law hospitals, but under the new Local Government Act the work of all the hospitals could be coördinated, the number of available beds doubled, and the disgrace of long waiting-lists removed. It was the hope of the medical profession that the standards and ideals of the voluntary hospitals would guide and inspire the work of the old poor-law institutions under the new control. It must be recognised, however, that physicians and surgeons required for the adequate staffing of these hospitals did not at present exist. Special and arduous training was needed before a man could undertake consulting duties, and the responsible authorities must go slowly at first and increase only at the rate at which fully qualified persons became available for the work. General practitioners should be given greater facilities for keeping in touch with their patients under treatment, and for following the practice of the hospitals so as to keep themselves abreast of the advances of medicine. The great imperfection of the National Health Insurance Act from the medical standpoint was that it gave the practitioner no chance of availing himself of hospital practice or of getting post-graduate training.

UNIVERSITY OF LONDON.—At a meeting of the Senate on Oct. 23rd the degree of D.Sc. in Medical and Vital Statistics was conferred on Mr. A. B. Hill, of the London School of Hygiene and Tropical Medicine.

CHELSEA CLINICAL SOCIETY.—The annual dinner of this society was held on Oct. 22nd at the Hotel Rembrandt, with Mr. L. A. Harwood, the President, in the chair. Dr. J. F. Halls Dally, President of the West London Medico-Chirurgical Society, proposed "The Chelsea Clinical Society and its President." The toast "The Visitors," proposed by Dr. K. E. Eckenstein, was responded to by the Lord Chief Justice and Lieut-General H. B. Fawcus.

PRINCE OF WALES'S HOSPITAL DINNER.—The annual dinner of the Prince of Wales's Hospital Re-union Association will be held at the Holborn Restaurant on Thursday, Nov. 21st, at 7.15 for 8 P.M., with Mr. T. H. C. Benians in the chair. Those wishing to be present are asked to inform Dr. Bruce Williamson, 137, Harley-street, W.1, stating the number of guests they are bringing.

LEEDS MEDICAL SCHOOL DINNER.—The forty-sixth annual dinner of the past and present students of the Leeds School of Medicine will be held under the presidency of Mr. S. W. Daw, at the Hotel Metropole, Leeds, on Friday, Nov. 8th.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff and past and present students of this hospital will be held at 6.30 for 7 P.M. on Saturday, Nov. 23rd, at the Trocadero Restaurant, Piccadilly-circus, with Mr. W. J. May in the chair. The medical committee will be at home to past and present students on the same day from 9.30 A.M. to 5 P.M. In the morning demonstrations will be given, and in the afternoon orthodontic and other cases will be shown.

THE SOCIETY OF APOTHECARIES.—A livery dinner of the Society was held in the Apothecaries Hall on Tuesday, Oct. 29th, when the Master, Lieut.-Colonel C. T. Samman, R.A.M.C., presided over a company which included, among others, the American Chargé d'Affaires, the Presidents of the Royal College of Physicians of London, the Royal Society of Medicine, the Medical Society of London, the British Medical Association, the Medico-Legal Society and the Harveian Society, the Director-General of the Army Medical Service, and the Master of the Drapers' Company. Col. Samman was supported by Prof. W. E. Dixon, officiating as senior warden in the absence of Sir George Buchanan, and Colonel E. C. Freeman, the junior warden. The dinner was exceptionally large, inasmuch as two interesting events marked the occasion—namely, the award to Prof. John Jacob Abel, of the Johns Hopkins University, Baltimore, of the Society's gold medal in pharmacology and therapeutics; and the presentation to Sir Humphry Rolleston of the Freedom of the Society. The unusual size of the gathering was, however, conveniently met, owing to the extensive reconstruction of the mediæval premises in Water-lane, which, at the expense of much energy and money, possess now the amenities for such functions, while losing none of their ancient charm. The speeches being necessarily large in number were kept proportionately short.

After the loyal toasts the Master in a few words outlined the history, position, and future hopes of the Society, after which Mr. Ray Atherton, of the American Embassy, received the medal of the Society on behalf of Prof. Abel, and responded sympathetically to the expressions of cordiality between his country and Great Britain which, when manifested in the Master's speech, were endorsed by all the company.

Prof. Dixon then formally presented Sir Humphry Rolleston to the Master in words appreciative of the way in which the Regius Professor of Physic at Cambridge had discharged, and was discharging, so many important duties. The Master then conferred the Freedom of the Society upon its distinguished guest, an honour which that guest accepted characteristically by saying nothing whatever about his responsibilities, but telling two excellent short stories.

The toast of the Royal Colleges was proposed by Dr. Cecil Wall, who brought out the friendly relations that now existed between the Colleges and the Society whatever dissensions in the past might have arisen during the development of their histories. Sir John Rose Bradford, replying for the Royal College of Physicians of London, confirmed this view in detail, and Sir Holburt Waring, representing the Royal College of Surgeons of England, while repeating these sentiments, was opportune in pointing to the failure of the metropolitan medical schools, despite the united view of the three diploma-granting bodies, to set in motion an adequate and practical scheme of post-graduate education

The evening closed with brief responses by Lord Dawson of Penn and Lord Riddell to the toast of the Guests.

OXFORD OPHTHALMOLOGICAL CONGRESS.—This Congress will be held next year on July 10th, 11th, and 12th.

NATIONAL RADIUM TRUST.—At a meeting of the Trust, held on Oct. 23rd, Dr. Comyns Berkeley and Dr. J. W. W. Morrison, members of the Commission, were coöpted to be members of the Trust.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—An address on the Dual Basis of Conduct will be given by Sir Herbert Samuel, M.P., on Tuesday, Nov. 12th, at 8.15 P.M., at Conway Hall, Red Lion-square, Kingsway, London, W.C. Tickets may be had from the hon. secretary, 88, Kingsway, W.C. 2.

"ALEXANDRA DAY" FUND.—Notwithstanding the bad weather on Alexandra Day and the difficulties created by the General Election, the net result of the collections in London on June 12th constituted a "record." The total receipts were £59,081: after payment of expenses, including £7127 paid for roses made by cripples, the net proceeds were £49,870—£1741 more than last year.

A HOSPITAL FILM.—The Hospital Saving Association has informed King Edward's Fund that the propaganda film "A Hundred Years of Progress" has been shown almost continuously since February, 1928, sometimes at three or four cinemas simultaneously. There has usually been a short talk after the film has been shown, describing what the working-classes owe to the hospitals and how they can best help to support them. The propaganda has added about 100,000 regular subscribers to the list.

ROYAL NORTHERN HOSPITAL.—The post-graduate lectures at this hospital begin again on Tuesday, Nov. 5th, at 3.15 P.M., and continue at the same time nearly every week until March, 1930. During the week, Dec. 2nd–6th, lectures and demonstrations will be held daily at 2.15 and 3.15 P.M. Notices of the various lectures, all of which are open free to practitioners, will appear weekly in our Medical Diary. A full programme may be obtained on application to the Dean of the hospital.

FOULERTON RESEARCH STUDENTSHIP.—If candidates of sufficient merit present themselves, the President and Council of the Royal Society propose to appoint a Foulerton Research Student who shall conduct research in medicine or the contributory sciences. The studentship is tenable for three years, is open to men or women of British nationality, and carries a salary of £700 a year. Application must be made before Dec. 9th, and further particulars may be had from the assistant secretary of the Royal Society, Burlington House, London, W.1.

CONFERENCE ON OPIUM AND DANGEROUS DRUGS.—A conference on the international control of opium and dangerous drugs is to be held at the London School of Economics on Wednesday, Nov. 13th. It is being arranged by the Women's International League, which has taken up the study of the question of opium in response to an appeal from the Chinese Anti-opium Society. There will be speakers from India, China, and Egypt, and those giving addresses will include Mr. P. J. Noel Baker, M.P., and Mr. Lyall, Chairman of the Permanent Central Opium Board of the League of Nations. Admission is free, and seats will be reserved on request to the secretary of the League, 55, Gower-street, London, W.C.1.

HONOUR FOR A MEDICAL MAN.—On Oct. 16th the Honorary Freedom of the Borough of Kingston-on-Thames was conferred on Dr. Roger Neville Goodman in recognition of what he has done for the town. In opening the proceedings the Mayor recalled Dr. Goodman's long and unsparing labour for the local schools and his services to the Victoria Hospital and the Kingston Nursing Association. His work, said the Mayor, had sought no publicity and had received little civic recognition because through its continuance and excellence it had been taken for granted. It would nevertheless stand as a memorial for all time, and his fellow-townsmen wished to pay its author the highest compliment in their power. Dr. Goodman in his response said that the honour might be explained by the fact that he belonged to the medical profession. He was glad to accept it as one not only to himself but to the other members of that profession in Kingston. At the subsequent banquet Sir George Penny, M.P., spoke of the untiring energy and great abilities which Dr. Goodman had devoted to his fellows. The new Freeman replied that his epitaph had already been written; it was "He did not know." He would like to have added "but he was willing to learn."

Since 1895 the Freedom of Kingston has been conferred only on eight persons—namely, Lord Selby, the Duke of Cambridge, Andrew Carnegie, W. E. Green, Lord Baden-Powell, Lord Cave, Lord Haig, and Dr. Goodman.

HOSPITAL COÖPERATION AT NEWCASTLE.—An advisory committee representative of the voluntary hospitals of Newcastle-on-Tyne has been formed to coöperate with the municipality in hospital matters, especially for the prevention of overlapping and for making the best use of the available beds. It is pointed out that, while Newcastle Royal Infirmary has a waiting-list of 2000, there are other voluntary hospitals, fully staffed, not many miles away, with many unoccupied beds.

SCHOOL HYGIENE IN GLASGOW.—Mr. John Clark, LL.D., who has just retired from the position of Director of Education in Glasgow, was entertained last week to a complimentary luncheon by his many friends in Glasgow, medical and otherwise, in recognition of his enthusiasm in promoting the teaching of hygiene at the training colleges. Both the system of medical examination and the treatment of school-children owe a great deal to his intelligent sympathy and encouragement. He had personal experience of American methods and admittedly education in Glasgow will miss his driving force.

TRELOAR CRIPPLES' HOSPITAL.—Lord Ampthill, Pro-Grand Master of the United Grand Lodge of England, last week, with masonic ceremony, laid the foundation-stone of the new wards of the Lord Mayor Treloar Cripples' Hospital and College at Alton, Hants. The new buildings will replace the present worn-out wooden huts; they will accommodate 355 crippled children besides 50 crippled boys who are being trained in the college, and will cost £100,000. Last week, also, the coming-of-age dinner of the hospital took place at the Mansion House, under the presidency of the Lord Mayor. It was then stated that since 1908 the hospital had dealt with 5000 children, 95 per cent of them successfully.

GRANGETHORPE HOSPITAL CLOSED.—Grangethorpe Hospital, Manchester, one of the best-known war hospitals in the country, has after 11 years finally closed its doors, the last patients being transferred elsewhere. During this time 15,000 men have received treatment in the hospital and 7000 operations have been performed. Before the war it was a private residence, and in 1918 it was bought for £11,000 by the trustees of the East Lancashire Homes for Disabled Sailors and Soldiers. For some years the work has been carried on under the authority of the Ministry of Pensions. The building has been presented to the Manchester Royal Infirmary, but it has not yet been decided how the hospital will be utilised. A suggestion has been made that it should be converted into a hospital for middle-class patients who cannot afford nursing-home fees yet wish to pay for treatment.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.

THURSDAY, NOV. 7th.—4.30 P.M. *The following papers will be read*:—W. A. Lamborn: The Remarkable Adaptation by which a Dipterous Pupa (Tabanidæ) is preserved from the Danger of Fissures in Drying Mud (communicated by E. B Poulton); H. E. Roaf: The Absorption of Light by the Coloured Globules in the Retina of the Domestic Hen (communicated by Sir Charles Sherrington); R. G. Tomkins: Studies of the Growth of Moulds. I. (communicated by Sir William Hardy); R. H. Stoughton: The Morphology and Cytology of Bacterium Malvacearum E.F.S. (communicated by Sir John Russell); E. C. Smith: On the Coagulation of Muscle Plasma (communicated by Sir William Hardy). *The following papers will be read in Title only.*—Sunder Lal Hora: Ecology, Bionomics and Evolution of the Torrential Fauna (communicated by J. H. Ashworth); N. J. Berrill: Studies in Tunicate Development. Part I. (communicated by D. M. S. Watson); J. C. Kernot, J. Knaggs and Madge Kaye: The Swelling of Fish Skins in Solutions of Inorganic and Organic Acids (communicated by Sir William Hardy); A. V. Hill: Anaerobid Survival in Muscle; A. V. Hill and P. Kupalov: Anaerobic and Aerobic Activity in Isolated Muscle; Sybil Cooper and D. Denny-Brown: The Interaction between two Trains of Impulses converging on the Same Motoneurone (communicated by Sir Charles Sherrington); C. H. Best and Ruth Partridge: Observations on Olympic Athletes (communicated by A. V. Hill); H. S. Holden: On the Structure and Affinities of Ankyropteris Corrugata (communicated by D. H. Scott); W. R. I. Cook and E. J. Schwartz: Life-history, Cytology and Method of *Plasmodiophora brassicæ* Woron, the Cause of Finger and Toe Disease of Cabbages and other Cruciferæ (communicated by E. J. Butler); R. Broom: On the Structure of the Mammal-like Reptiles of the Suborder Gorgonopsia; H. K. Mookerjee: On the Development of the Vertebral Column of Anura (communicated by E. W. MacBride); H. K. Mookerjee: On the Development of the Vertebral Column of Urodela (communicated by E. W. MacBride; R. R. Gates and F. M. L. Sheffield: Megaspore Development in Œnothera Rubricalyx (communicated by Sir John Farmer); C. F. A. Pantin: On the Physiology of Amœboid Movement. I., II. and III. (communicated by E. J. Allen); O. Rosenheim, and N. K. Adam: Monomolecular Films of Irradiated Ergosterol in Relation to the Production of Vitamin D.; R. N. Mukerji: Effect of X-Radiation on the Spermatogenesis of Lepisma Domestica (communicated by J. P. Hill); J. B. Gatenby, R. N. Mukerji, and Sylvia Wigoder: The Effect of X-Radiation on the Spermatogenesis of Abraxas Grossulariata (communicated by J. P. Hill).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, NOV. 5th.—8.30 P.M., ORTHOPÆDICS. Presidential Address: Mr. D. McCrae Aitken: Respiratory Rhythm in Physiological Relation to Movement and Posture, with Suggested Applications to Treatment. (Illustrated by cinematograph.) 8 P.M., PATHOLOGY. Laboratory Meeting at St. Mary's Hospital (Inoculation Department), W. Communications:—D. Colebrook: Sterilisation of the Hands. R. M. Fry and E. H. Davey: The Vernes Test for Tubercle. J. Freeman: Rush Inoculation. R. Hare: Variations in Streptococcal Cultures. I. Maclean: A Bacillus Found in Dental Granulomata. G. Roche Lynch: An Electrolytic Marsh Apparatus for the Estimation of Minute Amounts of Arsenic, Using a Mercury Cathode. Demonstrations:—Sir Almroth Wright: Intertraction. A. Fleming and S. Craddock: The Use of Penicillin in the Isolation of Some Bacteria. G. E. Harre: Human Tar Cancer. D. M. Pryce: The Halo Method of Mensuration. W. D. Newcomb and J. W. Orr: Recent Pathological Specimens. F. T. Ridley: Ossification in the Choroid.

WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Papers: Mr. W. J. Bishop: English Physicians in Russia in the Sixteenth and the Seventeenth Centuries. Dr. J. F. Fulton: Edward Selleck Hare (1812–38) and the Syndrome of Paralysis of the Cervical Sympathetic. 8.30 P.M., SURGERY. Discussion on Surgery of the Spinal Cord. Opener: Mr. Hugh Cairns. Speakers: Mr. Donald Armour, Mr. Geoffrey Jefferson, Sir Percy Sargent, and others.

THURSDAY.—5.30 P.M., TROPICAL DISEASES. Prof. A. C. Ukil: Epidemiology and Pathology of Tuberculosis in India (illustrated by lantern slides). Dr. G. Giglioli (provisionally): Paratyphosus C Infections in British Guiana—Sterile Abscess in Treatment (demonstration of specimens—lantern slides). Dr. W. Broughton-Alcock: Section Showing Structures Morphologically Resembling Spirochætes of a Species Common to the Mouth, Lying Deep Within the Mucous Membrane (for opinion). N.B.—Change in hour of Meeting.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Cases: Dr. C. Worster-Drought: Von Recklinghausen's Disease with Large Cervical Tumour. Dr. H. V. Morlock: Albinism with Enlarged Spleen; Congenital Syphilis with Anæmia. Mr. Cecil P. G. Wakeley: Osteomyelitis Treated by Bone Graft; Cirrhosis of the Liver After Talma-Morrison Operation. Dr. Gerald Slot: Congenital Heart. Mr. R. Rutherford: Late Rickets with Fractures. Dr. Terence East: Hæmophilia. Dr. L. S. T. Burrell: Von Recklinghausen's Disease. Dr. A. J. Scott Pinchin: Case of Coronary Thrombosis with Ventricular Aneurysm; Case for Diagnosis 8.30 P.M. OPHTHALMOLOGY. (Cases at 8 P.M.). Papers: Dr. Cammidge: Retinitis in Diabetes. Mr. Tudor Thomas and Mr. M. S. Mayou: Sarcoma of the Iris. Mr. M. S. Mayou: Sarcoma of the Iris. Cases and Demonstrations: Miss Hamilton McIlroy: Case of Hereditary Ptosis with Epicanthus. Mr. Tudor Thomas: A Steriliser for Ballantyne's Drop Bottles: A Pair of Prismatic Spectacles. Other cases will be shown.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, NOV. 5th.—5 P.M., Dr. J. A. Arkwright: The Virulence of Micro-organism in Infective Disease (Bradshaw Lecture).

THURSDAY.—5 P.M., Dr. G. F. Still: The History of Paediatrics in the Seventeenth and Eighteenth Centuries (First Fitzpatrick Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY, NOV. 11th.—5 P.M., Mr. C. P. Wakeley: Specimens of Cysts.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, NOV. 4th, to SATURDAY, NOV. 9th.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Mon., 5 P.M., Lecture by Mr. W. B. Gabriel: Common Rectal Complaints. No fee.—Tues., 8.30 P.M., Dr. J. W. McNee: Structure and Functions of the Spleen in Relation to Its Diseases. Fri., 8.30 P.M., Dr. O. L. V. de Wesselow: Nephritis and Œdema. Two lectures especially suitable for M.R.C.P. Candidates.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Wed., 10 A.M., Dr. Cecil Bull: Demonstration of Gastric Diagnosis. No fee.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. Wed., 2 P.M., Mr. W. Ibbotson: Demonstration of Throat Operations. No fee.—CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C. Special Post-graduate course in Ophthalmology. Every afternoon for four weeks, demonstrations and lectures.—ROYAL WATERLOO HOSPITAL,

Waterloo-road, S.E. Special post-graduate course in Medicine, Surgery, and Gynæcology. Every afternoon and some mornings for three weeks.—LONDON LOCK HOSPITAL, Dean-street, W. Post-graduate course in Venereal Disease. Daily every afternoon and evening. Further particulars from the Fellowship of Medicine.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Nov. 4th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Sinclair: Surgical Wards.
TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 2 P.M., Dr. Shaw, Medical Out-patients. 2.30 P.M., Sir Henry Simson: Gynæcological Operations.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. Dr. Scott Pinchin: Medical Out-patients.
THURSDAY.—11.30 A.M., Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department.
FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 12 noon, Dr. Shaw: Clinical Demonstration. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Department.
SATURDAY.—9 A.M., Mr. Vlasto: Throat, Nose and Ear Operations. 9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Children's Department.
Daily, 10 A.M. to 5 P.M., Medical, Surgical and Special Out-patients, Operations, Ward Visits, Anæsthetic Courses.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.
WEDNESDAY, Nov. 6th.—4 P.M., Mr. V. Zachary Cope: Radium Therapy.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Nov. 4th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Ear, Nose and Throat Clinics. Operations.
WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, Nose, Throat and Ear Clinics. Operations.
FRIDAY.—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M.: Surgical, Medical, and Children's Diseases Clinics. Operations.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Nov. 4th.—12 noon, Dr. Greenfield: Pathology of Nervous System. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Mr. Leslie Paton: Affections of the Optic Nerves.
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Purdon Martin: Tumours of the Cerebral Hemispheres.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Gordon Holmes: Ocular Palsies.
FRIDAY.—12 noon, Dr. Purdon Martin: Anatomy and Physiology of Nervous System. 2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Symonds: Infectious Diseases of Nervous System.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road.
FRIDAY, Nov. 8th.—4 P.M., Mr. A. Lowndes Yates: Diagnosis and Treatment of the Common Forms of Deafness.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Nov. 5th.—3.15 P.M., Mr. L. E. Barrington-Ward: Visceroptosis.

ST. PAUL'S HOSPITAL, Endell-street, W.C.
WEDNESDAY, Nov. 6th.—4.30 P.M., Mr. Kenneth Walker: The Enlarged Prostate.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.
WEDNESDAY, Nov. 6th.—4.15 P.M., Clinical Meeting and Demonstration of Cases in the Wards. Open to all practitioners.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.
WEDNESDAY, Nov. 6th.—2.30 P.M., at B.M.A. House, Tavistock-square, W.C. Quarterly Meeting. Dr. T. Saxty Good: Some Experiments with Suggestion and Association Tests in the Feebleminded. Dr. Geoffrey Shera: Bacillus Acidophilus Deficiency in Mental Patients.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Nov. 5th.—5 P.M., Dr. H. MacCormac: Diseases Due to Animal Parasites.
THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Occupational Dermatitis.

INSTITUTE OF HYGIENE, 28, Portland-place, W.
WEDNESDAY, Nov. 6th.—3.30 P.M., Dr. J. B. Alexander: Modern Diet: Its Effect on the Digestion.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 6th.—4 P.M., Mr. Stanford Cade: The Possibilities and Limitation of Radium Treatment.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.
MONDAY, Nov. 4th.—5 P.M., Prof. Leonard Hill: Atmospheric Pollution.

KING'S COLLEGE FOR HOUSEHOLD AND SOCIAL SCIENCE, Campden Hill-road, W.
FRIDAY, Nov. 8th.—5 P.M., Prof. V. H. Mottram: Human Nutrition. (Fourth of six lectures.)

KING'S COLLEGE, Strand, W.C.
TUESDAY, Nov. 5th.—5 P.M., Mr. J. W. Pickering, D.Sc.: Blood Plasma and Platelets. (Last lecture.)
THURSDAY.—5 P.M., Mr. J. A. Hewitt, D.Sc.: Metabolism of the Carbohydrates and Fats. (Last lecture.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.
THURSDAY, Nov. 7th.—9 P.M., Dr. Edward Mapother: Prognosis in Mental Disorder.

PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, W.
FRIDAY, Nov. 8th.—6 P.M., Dr. Eric Pritchard: Preventable Disease.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.
FRIDAY, Nov. 8th.—4.30 P.M., Dr. Arthur F. Hurst: Precursors of Carcinoma of the Stomach. (Schorstein Memorial Lecture.)

UNIVERSITY COLLEGE, Gower-street, W.C.
MONDAY, Nov. 4th.—5 P.M., Dr. R. J. Brocklehurst: Secretion of the Digestive Juices. (Last lecture.)
THURSDAY.—5.30 P.M., Rt. Hon. the Viscount Grey of Fallodon: Natural History, the Pleasure and Purpose of Observation. (Rickman Godlee Public Lecture.)
FRIDAY.—5.30 P.M., Mr. C. S. Elton: The Future of Animal Ecology. (Last lecture.)

ANCOATS HOSPITAL, Mill-street, Manchester.
THURSDAY, Nov. 7th.—4.15 P.M., Prof. J. B. S. Stopford: Spinal Tumours.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Nov. 5th.—4.15 P.M., Dr. A. H. Holmes: Meningitis.
FRIDAY.—4.15 P.M., Dr. H. Herd: Behaviour Disorders of Childhood.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC.
FRIDAY, Nov. 8th.—3.30 P.M., Dr. Naish: Gastro-Intestinal Disorders in Infancy and Childhood.

Appointments.

GOUGH, A., M.B., Ch.M. Leeds, F.R.C.S. Eng., has been appointed Hon. Surgeon, Hospital for Women, Leeds.

MCCURRY, A. L., M.D., B.Ch. Belf., D.O.M.S., Assistant Honorary Ophthalmic Surgeon to the Leicester Royal Infirmary.

MACINTOSH, J. M., Ch.B., M.D. Glasg., Assistant Medical Officer of Health, Northamptonshire.

Certifying Surgeons under the Factory and Workshop Acts: VAISEY, G. N., L.R.C.P. Lond., M.R.C.S. (Freshford, Somerset), and CONFORD, G. J., M.D. Oxf., B.Ch. Lond. (Felixstowe).

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—H.S. Also Asst. H.S. At rate of £175 and £130 respectively.
Birmingham City.—Asst. M.O. £750.
Birmingham, Highbury Hospital.—Res. M.O. £350–£400.
Birmingham, Queen's Hospital.—Res. Anæsthetist. £70–£100. Also Jun. R.S.O. £100.
Blackburn and East Lancashire Royal Infirmary.—Fourth H.S. £130.
Blackheath and Charlton Hospital.—Vacancies on Hon. Med. Staff.
Bolingbroke Hospital, Wandsworth Common, S.W.—Res. M.O. £200. Also Clin. Asst. to Ear, Nose and Throat Dept. £100.
Bolton, Townleys Hospital, Farnworth.—Second Asst. M.O. £225.
Bootle Borough Hospital.—Hon. Surgeon. Also Jun. H.S. At rate of £125.
Bradford Royal Eye and Ear Hospital.—Jun. H.S. £150.
Brighton, Royal Sussex County Hospital.—Sen. Asst. Path. £350.
Brighton, New Sussex Hospital for Women and Children, Windlesham-road.—Radiologist. £100. Also H.P. and H.S. Each at rate of £50.
Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Asst. S.
Chester Royal Infirmary.—H.S. £120.
Colchester, Essex County Hospital.—Asst. H.S. and Registrar. £120.
Coventry and Warwickshire Hospital.—Res. H.P. £160.
Derby County Borough.—M.O.H. £1100.
Dewsbury County Borough.—M.O.H. and School M.O. £900.
Douglas, Isle of Man, Noble's Hospital.—Res. H.S. £175.
Durham County Council.—Asst. Welfare M.O. £600.
East Ham County Borough.—Deputy M.O.H., &c. £700.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P. Obst. Asst. Three H.S.'s. Each at rate of £50. Also Clin. Assts.
Gloucester, Gloucestershire Royal Infirmary.—Second H.S. At rate of £100.
Gravesend and North Kent Hospital.—Jun. H.S. At rate of £80.
Great Yarmouth General Hospital.—Jun. H.S. £125.
Hampstead General and North West London Hospital, Haverstock Hill, N.W.—Cas. M.O. and Cas. Surg. O. Each at rate of £100.
Hertford County Hospital.—H.P. At rate of £150.
Hospital for Sick Children, Great Ormond-street, W.C.—Res. M.O. At rate of £250.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res. H.P. At rate of £100.

Hove, Lady Chichester Hospital.—H.P. At rate of £100.
Isleworth, West Middlesex Hospital.—Asst. to Med. Supt. £250.
Inverness, Northern Infirmary.—Hon. Radiologist.
Italian Hospital, Queen-square, W.C.—Res. M.O. At rate of £150.
Jersey General Hospital, &c.—Res. M.O. £200.
L.C.C. Mental Hospital Service.—Eighth Asst. M.O. £300.
Leamington Spa, Warneford General Hospital.—Res. H.S. £165.
Leeds General Infirmary.—M.O. in charge of Radium Dept. £600.
Leeds Hospital for Women.—Hon. Asst. S.
Leicester Royal Infirmary.—Third Res. Anæsthetist. At rate of £250.
London County Council.—Res. Deputy Med. Supt. at The Manor, Epsom. £500.
London Jewish Hospital, Stepney Green, E.—Hon. Asst. Radiologist.
Manchester City.—Asst. Tuber. O. £650.
Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Res. M.O. £200.
Manchester, Salford Royal Hospital.—H.P. £125.
Newark Hospital and Dispensary.—Res. H.S. At rate of £150.
North Middlesex Hospital, Silver-street, Edmonton, N.—Res. M.O. £200.
Nottingham General Hospital.—Second Cas. O. At rate of £150.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Med. Reg.
Public Dispensary, 122, Drury-lane, W.C.—Res. M.O. £150.
Queen's Hospital for Children, Hackney-road, E.—Cas. O. £100. Surgeon to Ear, Nose and Throat Dept. Also H.S. At rate of £100.
Radium Institute, Riding House-street, W.—Assistant to Medical Department. £600.
Rochester, St. Bartholomew's Hospital.—Res. Surg. O. At rate of £225.
Royal Northern Hospital, Holloway, N.—Med. Reg. £100. Also H.S. At rate of £70.
Royal Society, Burlington House, W.—Foulerton Research Student. £700.
St. John's Hospital, Lewisham, S.E.—Physician to Children's Dept.
St. Mark's Hospital for Cancer, &c., City-road, E.C.—Clin. Assts.
Sheffield, Children's Hospital.—H.P. Also Third Res. M.O. Each £100.
Sheffield Royal Hospital.—Res. Anæsthetist. £[illegible].
Sheffield Royal Infirmary.—Clin. Asst. to Ophth. Dept. Also Clin. Asst. to Med. Depts. Each £250.
Sheffield University, Faculty of Medicine.—Lecturer in Pathology. Also Demonstrator in Pathology. Each £500.
Smethwick County Borough.—Part-time M.O. for Infant Welfare. 1½ gns. per session.
Southampton County Borough Isolation Hospital.—Res. M.O. £360.
Southern Rhodesia Government.—Director of Public Health and Medical Services. £1750.
Walsall General Hospital.—Sen. H.S. Also H.S. At rate of £200 and £150 respectively.
Warrington Infirmary and Dispensary.—Jun. H.S. £175.
West London Hospital, Hammersmith, W.—Asst. Surgeon Dentist.
Willesden General Hospital, N.W.—Res. H.S. At rate of £100.
Windermere, Ethel Hedley Hospital for Crippled Children.—Res. H.S. At rate of £150.
The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Selby (Yorks).

Births, Marriages, and Deaths.

BIRTHS.

BROWN.—On Oct. 25th, at The Vine, Sevenoaks, the wife of W. G. Scott Brown, F.R.C.S., of a son.
DAVEY.—On Oct. 25th, at "Rockleigh," Gloucester, the wife of Dr. E. N. Davey, of a daughter.
MACKIE.—On Oct. 20th, at Louth, the wife of Col. F. P. Mackie, I.M.S., of a son.

MARRIAGES.

HILTON-SERGEANT—WALKER.—On Oct. 16th, at Dalton Church, Frederick Cavendish Hilton-Sergeant, Captain R.A.M.C., to Kathleen Margaret Howard, second daughter of Mr. and Mrs. Howard Walker, Dalton Grange, near Wigan.
SEXTON—ALLEN.—On Oct. 26th, at Ipsley, Frederic Braemar, Worth Sexton, L.D.S. R.C.S. Eng., of Plymouth, to Joan Florence, only daughter of Mr. and Mrs. Allen, of Bewley.

DEATHS.

BRAYE.—On Oct. 16th, at Hastings, Reginald James Braye, M.R.C.S., L.R.C.P. Lond., late of Leicester.
COOKE.—On Oct. 23rd, at Sawston Vicarage, Cambridge, Thomas Burnard Alfred Cooke, M.R.C.S., L.R.C.P.
DICKSON.—On Oct. 22nd, suddenly at "Hartree," Shanklin, Isle of Wight, Frank Lindsay Dickson, M.B., Ch.B., aged 56.
KENDREW.—On Oct. 23rd, in a nursing home, London, Alexander John Kendrew, M.C., M.B., White House, Mile End, Colchester.
ROWLANDS.—On Oct. 25th, at the Gables, Bromsgrove, Worcestershire, William Herbert Rowlands, M.R.C.S., L.R.C.P.
RUSSELL.—On Oct. 13th, at Holyhead, William Fox Russell, M.B., aged 65 years.
SMITH.—On Oct. 22nd, at Trevean, St. Austell, Cornwall, Ernest George Smith, M.R.C.S., L.R.C.P. Lond., late of Ford Park-road, Plymouth.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ARTIFICIAL CREAM ACT PROSECUTION.

In our issue of August 24th (p. 413) we noted the first prosecution under the Artificial Cream Act, 1929. Our summary of the evidence attributed to the defendant company (the Ferns Pure Milk and Cream Co.) the statement that a Government analysis showed that its cream was reconstituted cream with a low fat content. The company supplies us with independent analyses, showing the fat content of the preparation, and points out that its manager, in the evidence referred to, was referring not to the company's cream, but to that sold by certain dairy companies. We gladly publish the correction, and regret the occurrence of the error.

SEWAGE DISPOSAL.

In his Chadwick lectures, delivered on Oct. 17th and 19th, Mr. A. J. Martin dealt broadly with the problems of sewage disposal. Concentration of population gives rise to many difficulties which do not occur in scattered communities, not the least of these being the disposal of excreta. To illustrate the rather reckless way in which our not very remote ancestors dealt with sewage, Mr. Martin quoted Sir Robert Rawlinson's question, "is it better to kill fish, or to kill men?" Methods of land disposal, appropriate enough when land was cheaper, had had their day, and chemical precipitation was a thing of the past. Sewage was by no means the dead and depressing thing that it looked, as it contained in itself the agents of its own purification. It was, however, necessary to give these organisms a chance of doing their work, to provide laboratories, and, in some cases, reagents for them. The modern bacteriological treatment of sewage had its beginnings in the coke-bed set up by the London County Council on the advice of Mr. Dibdin, and the septic tank first erected by Cameron at Exeter. The problem of sewage purification is too often complicated by the presence in sewage of large quantities of industrial wastes, among which the products of two new and growing industries, beet sugar and artificial silk, present special difficulties, which are not yet fully overcome. Many streams are badly polluted with these by-products, which are often discharged without appreciable treatment.

In his second lecture, which was largely historical, Mr. Martin stated that the purification of foul matter is most effectually achieved by oxidation; but whereas solid refuse is quickly burnt at a high temperature, the waste matters in sewage, diluted as they are with many thousand times their weight of water, can only be oxidised by the slow processes of moist combustion at ordinary temperature. In a small country like England, with no great lakes or rivers where this process can go on in very dilute solutions without artificial aid, special works and artificial means of introducing the necessary oxygen must be adopted. Even a vast country like the United States of America has sewage problems which are still outstanding. The ease with which a large proportion of the suspended solids of sewage can be removed by sedimentation points, said Mr. Martin, to this as an obvious preliminary measure before bacterial (or rather biological) treatment is used. Fifteen years ago it appeared that sedimentation tanks followed by treatment on trickling filters would be the standard form of disposal, but at that time Dr. Fowler threw a bombshell into the camp in the form of the activated sludge process. In this the usual course is reversed, and instead of the sewage passing over the active material, this latter, in the form of a flocculent humus-like suspension, is passed through the sewage. More was expected of the activated sludge process than has perhaps been realised, and where full purification is required it is usually advisable to provide filters. Nevertheless, by interposing activated sludge treatment, a city like Birmingham has been able to save the cost of laying down an additional acre filter-bed each year. London sewers laid 60 years ago are still doing good work, and for half a century the Thames has received the whole of the liquid sewage; but the volume discharged is now outgrowing the capacity of the river to deal with it, and the London County Council are about to lay down supplementary works of a novel character. What to do with the sludge produced by sedimentation is not easy to decide. In some places it is dealt with by digestion, and latterly successful attempts have been made to utilise the large volumes of combustible gas evolved. At Essen, Dr. Imhoff sells the gas so produced to the municipality, and Mr. Martin remarked, for the benefit of Sir G. W. Humphreys, who was

in the chair, that the northern outfall for London sewage was adjacent to the Becton gas-works. He closed with a note of warning about the waste of nitrogen involved in most of the present means of sewage disposal.

MATERNAL MORTALITY AND PUBLIC OPINION.

Mr. Arthur Greenwood, speaking at a Conference arranged by the Maternal Mortality Committee, and held at the Central Hall, Westminster, on Oct. 22nd, mentioned two of the good things which, as Minister of Health, he had inherited from his predecessor. These were the committee appointed to make a scientific investigation into the problem of maternal mortality, still at work, and the departmental committee on the training and employment of midwives, which had already reported. He also drew attention to the memorandum of the British Medical Association setting out a scheme for a national maternity service, and to the findings of the Royal Commission on National Health Insurance. Some of the recommendations of the committee on midwives could be set in motion under existing laws, but the major proposals of the report would require legislation. Many local authorities were not at present using a fraction of their powers in the matter of maternity service, and he was prepared to encourage, stimulate, and press them in every way to make effective the powers they already possessed. This, however, was largely a matter of public opinion; if 20 millions of people urged certain things with strength and determination, those things would be done. Mr. Greenwood said that he was no opponent of fresh legislation and, though it was difficult for him to give any pledge, he hoped it might be possible, at no distant date, to deal with the problem in a broad and comprehensive fashion, fitting it into the general provision being made to maintain and improve the standard of public health, and also into the provision being made through a system of social insurance.

This statement made it easy for Mrs. Hubback to introduce a resolution welcoming the recommendations of the departmental committee to make available for all mothers skilled attention and nursing before, during, and after childbirth, urging the Minister of Health to put the recommendations into force as soon as possible, and pledging the Conference to give him active support. It was evident, she said, that the Minister was going to merit his title, and all the public had to do was to back him up. Dr. H. B. Brackenbury, chairman of the Council of the British Medical Association, went further, saying that medical men had already shown themselves entirely in sympathy with the movement, of which they had, indeed, been pioneers. Public opinion was already ripe for action, and officials need have no hesitation in going ahead at once with a scheme such as that outlined by the British Medical Association. If Mr. Greenwood had introduced a measure on this subject as his first Bill, after taking office, there would have been no opposition. At the end of the meeting Mrs. Hubback's resolution was put to the Conference by Lady Cynthia Colville, the chairman, and was passed unanimously.

THE PATHOLOGIST ABROAD.

Dr. Austin Freeman [1] in this substantial volume brings together 37 examples of the uncanny detective ability of his now famous creation, Dr. Thorndyke. Seeing that Dr. Freeman has done medical service as house physician to the Middlesex Hospital, as a colonial surgeon, and as a surveyor and naturalist on political expeditions, he is able to conduct his readers from personal knowledge along very varied and curious pathological paths; and as all this assortment of wisdom resides, filed and indexed, in Thorndyke's brain, it becomes *natural* that he should regularly arrest the course of crime by the discovery of clues, the bare existence of which could never have been anticipated by the actor—"natural" is the right word, for Dr. Freeman, with great skill and accuracy, contrives always to account satisfactorily for episodes that are incredible. That is the main reason for his well-deserved popularity as a writer of detective fiction, and it is because he is so well documented that he has been able to create interest in what he terms the inverted story. Such a story opens with a narration of what has happened, so that the pleasure of the reader is not due to any excitement as to who did the crime or as to how it was done; these things we are told, but the fun depends on the intellectual exercise spent upon estimating the methods employed in detection. Obviously such a machinery for telling a story could only be employed by a writer who felt perfectly sure that each step in tracking down was taken upon sure ground.

Many will have seen some or all of these stories before, but no one without Thorndyke's powers of memory can have kept such an assortment of episodes in their head. We commend the book, as a diversion, to all our readers.

[1] Dr. Thorndyke, His Famous Cases. By R. Austin Freeman. London: Hodder and Stoughton. 1929. Pp. 1088. 7*s.* 6*d.*

MUSSEL POISONING.

A MYSTERIOUS poisoning has been found to result from the eating of mussels on the western American coast, particularly in districts north of San Francisco. Investigators have satisfied themselves that the poison is not formed by bacteria and that it is heat stabile in acid solutions. No means have been discovered yet of distinguishing wholesome from poisonous mussels. It is thought that the poison results from some metabolic disorder of this shellfish influenced by its food, and perhaps by the spawning conditions. It may be necessary to determine a closed season for mussels, in this region at least. In the meantime warnings have been issued by the California State Department of Health as to the danger of using mussels for food. Those who, soon after eating mussels, experience tingling or numbness around the lips and a prickly sensation in the finger tips or toes, are advised to call a physician at once.

THE CALL OF THE HIGH-VELD.

UNDER this title Dr. L. E. Hertslet has written a useful little pamphlet for "South African Railways and Harbours," which can be obtained from any office of Messrs. Cook and Son, and from the offices of the Union of South Africa, Trafalgar-square, W.C. The author gives a brief summary of the climatic and physical features of the country together with health statistics, an account of the facilities for recreation, and many notes which will be helpful to those who contemplate visiting "a land where the summer nights are cool and the winter days filled with sunlight, where it is not too wet and seldom too dry, where the barometer 'plays no tricks,' where the health-rates are good, where the altitude is not troublesome, and the atmosphere delightfully clear."

MECHANICAL MAN.

Mr. H. Stafford Hatfield, the author of Automaton, or the Future of the Mechanical Man,[1] gives instances of automatic processes either already invented or capable of being brought into existence and draws gloomy conclusions from their contemplation. He suggests that as these devices come into being life will become dreary and monotonous, ignoring the fact that the more complicated and skilled machinery and processes become the more skilled are the men needed to tend them. He argues from analogy that modern civilisation, largely based on such automata, must fall away just as it has risen. Analogy, however, here seems false, since the human race has been steadily, but with increasing velocity, developing its command over its environment for some half million years. We can afford to disregard the possible decline of a wave of progress which is still rising after so prolonged a period.

SNAKE-BITES.

A LITTLE book,[2] by Mr. F. W. Fitzsimmons, Director of the Port Elizabeth Museum, Cape Town, supplies in accessible form an account of the right ways of treating snake-bite. The mortality, permanent physical and mental disability arising from snake-venom poisoning in South Africa is known to be comparatively heavy, though no statistics are kept of the number of cases of snake-bite. Both the expert and the tyro in snake-lore will find matter to interest them in this book, and the section dealing with the prevention of snake-bite is of especial interest. Medical officers and adventurous members of the lay public will also acquire much accurate information upon snakes and their unwelcome habits.

[1] London: Kegan Paul, Trench, Trübner and Co. Pp. 100. 2*s.* 6*d.*

[2] Snakes—and the Treatment of Snake-bite. The Speciality Press of S. Africa, Ltd. 1929. Pp. 70.

A REMARKABLE HOSPITAL BAZAAR.—A five days' bazaar in aid of the new infirmary at Dewsbury has produced £22,153.

HOSPITALS AND MOTOR ACCIDENTS.—Members of Parliament who are interested in hospital questions and regional secretaries of the Association are being circularised by the Council of the British Hospitals Association with reference to the expense caused to hospitals by the treatment of sufferers from motor accidents. The Council say they have agreed to press for some recognition of the claims of the voluntary hospitals in this regard. Earl Russell, who is about to introduce a Bill dealing with road traffic, has informed Sir Arthur Stanley that the advisability of including in the measure some form of compulsory insurance for motorists is under consideration. Last year the treatment of patients injured in motor accidents cost three Glasgow hospitals over £10,000.